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HYDRO ELECTRIC ENQUIRY COMMISSION



QUEENSTON - CHIPIAWA

Estimates and Appropriations

TORONTO, MARCH 22ND, 23RD, 1923.

W. C. Coo,
Official Reporter

HYDRO - ELECTRIC INQUIRY COMMISSION.

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10:30 a.m. session - Wednesday, 22nd March 1923.

HENRY G. ACRES, recalled, examined by HON. MR. ROWELL:

Q--Mr. Acres, have you been able to locate plans submitted to the Government and referred to in the Commission's application of April, 1916, asking the Government's approval of the plans? A--No, sir, unfortunately I had nothing whatever to do with the correspondence either previous to the writing of that letter, or in connection with that particular letter, Mr. Rowell, and I have not been able to go through my own department to trace up and determine just what plans they were.

Q--Well, what plans have you that were prepared on this work prior to the plans of January 7th, 1917?

A--Well, I cannot tell from memory very precisely, but there are certainly plans in existence.

Q--A complete set of plans of the work? A--I would not go so far as to say they were complete plans, because the proposition was in a state of flux at that time, but they were plans indicating our line of thought at that time.

Q--Well, perhaps, you could bring for us the plans that were prepared prior to January 7th, 1917, and then it may be that either Mr. Gaby, or somebody else, can tell us which ones were actually submitted to the Government?

A--That may be possible.

THE CHAIRMAN: Mr. Rowell, were those the plans that were referred to in the preamble to the Act that you are speaking of?

HON. MR. ROWELL: Yes, and it is also referred to in a letter from Mr. Pope to the Acting Prime Minister, Doctor Pyne, Exhibit 4, on April 24th, 1916, in which the Commission formally request the Government to approve of plans which have been submitted to the Government. What

I wanted to identify, if we could, was the plans for which formal approval was asked by the Commission in April 1916. That was, approximately, the date of the legislation, you see, the first Act.

THE CHAIRMAN: Yes.

HON. MR. ROWELL: Q--Will you kindly look up those plans? A--Yes.

Q--Now, then, I also asked you to see if you could find any instructions giving you approving of the proposed works, and authorizing you to proceed on the revised plans? A--I can find nothing in any material I have in my possession, Mr. Chairman. I had my men look up the files, and I can find nothing. The fact of the matter is, of course, that this matter had been discussed so often, was so extensively taken up in a verbal way, that any documentary evidence would be of a very brief nature, and, as I said yesterday, my memory is a complete blank over the intervening period of, say, six years, that I cannot state on oath whether I ever got a formal memorandum, although I think probably I did, but if I did I would probably initial the thing and throw it into my outgoing basket, and it would go beyond my ken altogether.

Q--Well, where would it then go? A--I was rather hoping to discuss that particular phase of the situation with the Chief Engineer when I got to the office this morning, but there was a board meeting on at nine o'clock, and he just came out as I left, because, properly, that is the source from which that document originated and from which, I imagine, it should come.

Q--Well, then, Mr. Gaby would either have a duplicate original, or the document would go back to the general files? A--I should imagine so, yes.

Q--Well, perhaps he can tell us then on that point?

A--It seems quite evident that I did not keep a copy of it on my files; it was not a thing that was necessary, in any way.

Q--As I understood from your testimony yesterday, Mr. Acres, instructions would come from the Chief Engineer to you, you would not take any action without instructions from the Chief Engineer? A--No, sir.

Q--And whatever you did in the various stages of the work you did under his instructions? A--Yes, sir. Of course, as I mentioned yesterday, during the latter periods of the work I went over to Niagara for the primary reason of taking, more or less, summary control of the work, and things were done there, from time to time, on my own initiative, things that were only reported to the head office after they were possibly under way, or done, that was an inevitable contingency. I was entrusted to do that; I was sent over there for that express purpose.

Q--When was that, Mr. Acres, when were you sent over to the work for this purpose? A--That would be in the early part of 1920, Mr. Rowell.

Q--And would you send in reports then of any changes in plans? A--The reports would come in, in the form, often, of field drawings, showing the change which had been done, for incorporation, as revisions, in the original plan.

Q--Yes? A--As a matter of record.

Q--Just so that there will be no misunderstanding, as I understood you yesterday, Mr. Acres, the estimate of January 3rd, 1919, that is, Estimate No. 2A, if you added to that the additional cost of the intake, the change in the specifications for the intake, that would give you your estimated cost of construction of the

work as of January, 1919, on the general plan, and to the capacity finally constructed with 300 horse power installed? A--I think it is rather a misnomer, Mr. Rowell, to call that document an estimate, because, in so far as it applies to anything beyond the \$786,000.00, that was all that I ever submitted -

Q--Well, let us call it anything you like?

A--I cannot take the responsibility for saying that anything was an estimate over and above the total of \$786,000.00, which was computed as being the additional equipment involved in the lining of the canal.

Q--Mr. Acres, do you want to change your opinion, as expressed yesterday, that that estimate did represent what you considered, on the 3rd of January, 1919, a sum sufficient to complete the work? A--No, sir, not in any sense of the word. What I undertook to explain at that time was that, at that time, there was not more than ten per cent of the work completed, and ninety per cent of the other work still to do, and that I saw no reason for not having good hopes of making good that original estimate. At that time, I could not conceive that labour costs were not going to drop. I admit it was wrong judgment but, as I say, at that time, I had no conception but that labour and material costs were not, even then, on the eve of a very sudden and material drop, and I had no doubt, in my mind, at that time, that any excess cost that had been realised in the matter of doing the ten per cent of the work that had been completed up to that time would be offset by the drop in material and labour costs that I anticipated from that time on.

Q--Well, then, am I correct in this, because I just want to get it as a basis, as a starting point on which

to ask you another question? A--I might say, so that there will be absolutely no misunderstanding about it, that if the question to me had been framed by you in this way - "In view of what you know now, do you consider the estimate -

Q--Any way, we will come to that later, we are dealing with it chronologically so that we will get the view that you had at the time these reports were made; that seems to me as the fair way to deal with it.

THE CHAIRMAN: Q--Had the cost been exceeded by the ten per cent up to that time? A--I am not in a position to say, Mr. Gregory.

Q--I thought you mentioned ten per cent?

A--Ten per cent of the projected work had been completed up to that time.

Q--You don't know whether or not the estimate had been exceeded? A--As I say, only ten per cent of the work had been done, and I figured, at that time, with the drop in labour and material costs momentarily expected - and I do not think I was alone in that opinion, I do not think anybody at that time dreamed of the conditions we were going to be up against for the next two years, - I did not take the trouble to figure cost because I thought the margin was so great that it would more than absorb the additional cost on the comparatively insignificant portion of the work that had been completed up to that time.

Q--On the contingencies provided? A--Not only contingencies, Mr. Gregory, but the actual drop in costs that I anticipated by the recurrence of, approximately anyway, pre-war conditions, because, you see, the estimate of 1917 was a bona fide war estimate, as I saw conditions at that time, and it was an estimate that took into

consideration costs in excess of pre-war conditions. So that I thought I was justified in considering that the amount provided for would be ample to take care of the additional cost, considering the conditions at that time. As I say, that estimate of 1917 was compiled in, practically at the - well, in the second year of the war anyway, and it was compiled on a basis of war conditions, as I saw them at that time, governed by the consideration of plant efficiency which we expected to realise from the particular type of plant that we had working on the job. So that explains my viewpoint, as I expressed it to Mr. Rowell, with regard to that so-called estimate, 2A, which is really not an estimate at all. It is a document that Mr. Francis himself has put in, in the form of an estimate, in his report.

Q--Which corresponds with the figures given to the Provincial Treasurer? A--It is simply a compilation of figures which he received from us and which, of course, I confirm separately.

HON. MR. ROWELL: Q--Am I correct in this, then, Mr. Acres, that if you add, or take the estimate 2A, which was the additional cost due to the change in the type of the intake, which made the total up to \$27,225,335.00, you have the figure which you, in January 1919, thought would be sufficient to complete the work up to 300,000 horse power installation, as it was finally completed?

A--I don't know that I ever gave the idea that that is what the intake was going to cost?

Q--I mean, add that on, just to get an idea?

A--The intake, at that time, was more or less of a nebulous quantity, we really did not know what we were going to put in, in the form of an intake. I should say, in answer to your question, that had I known that we were

going to be obligated to the expenditure for the intake that you mention, that is, in view of the state of progress of the job at that time, and labour and material conditions, and so on, as I saw them, and as I expected them to be shortly, I would say that the cost of the work would be with the addition of those two particular items; theoretically, that is correct, it would be the addition of those two particular items to the original estimate of November, 1917, as we saw the job at that date.

Q--Well, then, that \$27,025,000.00, which indicates the additional intake, as given in Mr. Francis' report, is the estimate for the same work, or is it the estimate for the same work as the estimate of 1922 at \$65,000,000.00?

A--What is that estimate of 1922, Mr. Rowell?

Q--1922 is the \$65,000,000.00, February 10th, 1922, as furnished? A--I cannot say, Mr. Rowell, I am sure.

Q--I am asking is it for the same work, or was there any change? A--I cannot say that.

Q--Well, was there any change in the type of the canal, in its design or construction? A--There was no change in the type of the canal; there was no change other than those certain features that I mention as having ^{been} decided upon summarily myself in the field. There was no material change, as I remember it, in the portion of the work for which I was responsible, in connection with design but, as to the electrical work, I cannot answer your question at all. The electrical design may have been changed absolutely, and it might have doubled the cost for all I know about it.

Q--Then, so far as your portion of the work is concerned, the so-called estimate 2A with the intake added would represent the same work as the estimate of Sixty Five Millions given to the Prime Minister in 1922,

or Sixty Four Million, some odd, estimate of 1923?

A--As far as I am able to answer that question, Mr. Rowell, I would presume that to be true.

Q--I am only speaking of your branch of the work?

A--I would not like that to be accepted as a bona fide statement on oath, and I might say that I would like it to be understood that any statement I do make I do not wish at all to take precedence over the considered data,

that I am preparing for Mr. Francis, and which is being incorporated in his reports.

Q--Well, but, Mr. Acres, if there is any point upon which you do not feel competent to express an opinion, and you haven't the data now, I wish you would take the time to get it before you answer, because I do not think we can get ahead very far if you give your evidence here and say that some other document is to take precedence over your testimony here. We want you to give us here whatever is your best judgment in the matter, and we want to give you plenty of time? A--The only practical way of doing that would be to supply you with the same data as I am giving to Mr. Francis, as I get it prepared.

Q--Well, cannot you tell this, Mr. Acres, as the man in charge of the work; is there any difference, in your branch of the work, in the actual work done, as between the so-called estimate 2A of 1919, with the changed intake, and the work as actually finished? A--My answer is, Mr. Rowell, as I remember it, no, but that the final and definite answer to that question will be in the material submitted to Mr. Francis for his report.

Q--Well, will you tell me this: You see you have then, on that assumption, an increase of from Twenty Seven Millions in 1919 to Sixty-Five Millions in 1922 for the same work? A--Yes.

Q--Now, will you tell me when you first discovered that the estimate of Twenty Seven Millions would be quite inadequate to complete the work? A--In 1920.

Q--What time in 1920? A--In the spring of 1920.

Q--Did you report on that at that time? A--I did not make a written report, Mr. Rowell, I simply reported that, as far as estimates were concerned, I was beyond my depth.

Q--Yes? A--That the conditions had become such that estimates, no longer, meant anything as far as I was concerned, and I think the result of my representation was that Mr. Hugh L. Cooper was called in to check up the work. That is my understanding of it.

Q--You reported in 1920 that estimates no longer meant anything? A--Yes, sir; conditions were varying so from day to day that it did not require an engineer to determine that the original estimate was being exceeded, it did not require a recapitulation of engineering costs. I knew how much money we had invested in salvageable equipment, to a certain extent, comparing that with the amount of money that the Accounting Department had on record as having gone into that job, I could quite see that the estimate was going to be exceeded.

Q--Well, you said you felt you were beyond your depth, what did you mean by that? A--I simply meant, sir, that I was not in a position to make an estimate comparable to the basis on which the estimate of 1917 was made, that I no longer had confidence in the stability of conditions which would make possible the preparation of an estimate of the same status as the estimate of 1917, that is, going into the details of what rates per hour would be paid to labour, and what materials would cost, and so on.

Q--How would any other engineer be more competent to do that than you? Mr. Acres? A--I don't know, sir. I was

quite willing to give somebody else a chance to say that I was wrong, and what the remedy was, if any.

Q--Did you make any report in writing? A--I don't think I did, sir. I just said, here, that is all there is to it, anybody can see that that estimate is gone, that is all.

Q--You told us yesterday, I think, that you went into the estimate with Stewart & Kerbaugh, and you concurred in their estimate made in the autumn of 1920?

A--Yes, sir, I still had sufficient optimism to concur in their figures, and to defer to their judgment. I wish to make it clear that they made an absolutely independent - based their figures on independent judgment.

THE CHAIRMAN: Q--Mr. Acres, before you made your report, that you have spoken of, did you receive a request from the Chief Engineer, or from the Commission, for reports on the subject? A--I cannot recall that, sir.

HON. MR. ROWELL: Q--I notice in these estimates which Mr. Francis has tabulated in chapter K, page 18, Mr. Acres, the estimates of Stuart & Kerbaugh on the basis of 15,000 cubic feet per second diversion, for present installation, 250,000 and 450,000 horse power. Did Stuart & Kerbaugh make an estimate at that time of the cost of the present installation of 300,000? A--No, sir, I don't think they did, not that I know of.

Q--In order to get comparable figures, can you tell me what should be added to the 250,000 estimate to give the 300,000 present installation? A--I haven't the slightest idea, sir.

Q--That would be the electrical part? A--It would not only involve that, but would involve an independent computation that I have never yet made.

Q--Then to what do you attribute principally, without

going into it in detail, the change in the estimate from Twenty Seven Millions in 1919, to, we will say, Forty Five Million Dollars in round figures, in the fall of 1920? A--Well, apart from the actual changes in design which we have discussed?

Q--No, I am including the changes? A--Well, I say apart from that, I assume that that is taken for granted.

Q--Just a moment. I am including in the Twenty Seven Millions the changes in design which you described yesterday, which added to the cost, plus the intake?

A--Yes.

Q--Now, were there any other changes in design that added materially to the cost that you yourself made on the ground? A--Yes, I cannot say definitely, Mr. Rowell, that is a matter of degree, as to just what significance the word "material" has. It is a matter that will have to be shown up in actual figures. I don't think that there was any very enormous increase due to the changes of that nature, but I really cannot say on oath that they were not material.

Q--Well, illustrate, give us one to illustrate what you mean? A--Well, I can give you one instance: At the junction of the earth section and the rock section of the canal there was a block of rock there involving, oh, about forty six thousand yards, which, under the original plans, was to have been excavated. I found that, as the large steam shovels which we purchased showed up in operation, it wasn't going to be possible to get that forty six thousand yards out, to get the earth out for that forty six thousand yards in time to get the forty six thousand yards of rock out by the time the section bridge was completed in the balance of the route of the canal south to Montrose, so I simply gave instructions that that

forty six thousand yards of rock was to remain where it was, and not to be touched, and the compensation was to be provided by removing the grade of the rock section of the canal up to the summit elevation of this particular forty six thousand yards of material, and the earth section flared out, so as to compensate for this loss of section due to the leaving of this forty six thousand yards of rock. Now, that may have been a material saving, or it may have been a material excess cost, I am not quite sure which.

Q--And then subject to any of these, more or less, detailed changes, you made on the work at the time, which you are not able to say whether they added to or diminished the cost, to what do you attribute the great difference in these two estimates? A--Of course, it may have been due to my ignorance and my inefficiency, I don't know that I am particularly qualified to answer that particular phase of it, but my frank and candid opinion is that the bulk of that discrepancy was simply due to the labour and material conditions which obtained, and which were absolutely unanticipated and unimagined.

Q--On that particular matter, you are giving information to Mr. Francis? A--Absolutely, sir. I may say that it was not only the cost of labour in dollars and cents that was the thing. The question of efficiency is a matter that, I think, has been amply demonstrated. I am very far from saying that every man on the job was a slacker, but if there had not been good men on the job the job would never have been finished yet. But the fact remains, and the records we have to show, and the records of other construction work in that period, show that the production efficiency of labour was gradually reduced, and in the matter of common labour I have made the statement before, and I will make it again, that, on the basis of pre-war

production our common labour during the last year or so on the canal cost us \$10 a day, that is, we had to pay \$10 in ten hours for the same amount of production that labour gave us previous to 1914 for one dollar.

Q--When do you say that was, Mr. Acres ? A--In the latter phases of the work.

Q--In 1921 and 1922 ? A--Of course, this matter of labour efficiency grew like everything else at that time.

Q--Did not labour efficiency increase in 1921 over 1920 ?

A--Yes, it did, slightly, sir, and our costs decreased.

Q--And in 1922 over 1921 ? A--I think the efficiency of labour was much better. It reached its peak in 1920 and a gradual recession began in 1921, some time in 1921.

As to material, I mentioned that the cost of material in 1920, and since, had a bearing on the cost of the work. We had ocular evidence of the fact when we had to use blacksmiths to bend reinforcing steel which should be bent cold on its own diameter, and we had, at times hoist chains breaking at perhaps 3 in the morning, and wire cables snapping like glass. We had conditions like that to contend with.

Q--Of course, I just want to draw the matter to your attention, Mr. Acres, to see what you have to say about it. One would appreciate, if this work were being done for private parties who did not have an unlimited credit behind them, to find that the cost of the work as estimated in January of one year, \$27,000,000, and reached \$45,000,000 for the following year, would be a pretty startling situation, would it not ? A--Well, other work that was done at that time under exactly similar conditions obtained, Mr. Rowell, as far as I know. Our rates of increase on that work, as far as I know, were not out of proportion to rates of increases on other classes of work that was being done at the same period as you mention.

Q--Well, then, you got to the peak of labour costs in 1920?

THE CHAIRMAN: Was ^{it} the summer of 1920, Mr. Acres, or what time in 1920?

A--The first indication of the drop in labour costs took place in July of that year when the working force on the job finally decided to go back to work after the strike, at a slightly reduced rate.

HON. MR. ROWELL: Q--Well, then, so far as the work was concerned, you reached the peak of labour costs at what period? A--The peak of labour rates were reached in 1920, Mr. Rowell.

Q--Yes, at what date? A--The peak of labour costs is a matter on which I cannot specify a date.

Q--Let us deal with labour rates first, at what part of 1920 did you reach the peak, at what date?

A--Well, it wasn't a question, - the peak of labour rates obtained from the spring of 1919, I think, until August of 1920.

Q--Till August of 1920? A--Yes, and then we were able to put in force the reduction in rates that I mention.

Q--Yes. Then from August 1920 there was no increase in labour rates? A--Not to my recollection, sir, no.

Q--How long ^{did} the rates you put in force in August 1920 continue? A--They were in force until the completion of the work, that was until the completion of the canal. No, pardon me, that is wrong. I am entirely wrong about that, Mr. Rowell. The settlement of 1920 involved an increase in rates; the strike settlement involved an increase in rates.

Q--I thought you said they decided to go to work at a lower rate? A--It was in August, 1921, that we were finally able to put a decrease in rates in force. Yes, that evidence of mine is completely wrong.



Q--Well, then, in August, 1920, you were paying your maximum ? A--Our maximum rate came into effect in August, 1920, the labour rate.

Q--And your lower labour rate came into force about a year later ? A--Yes.

Q--August 1921? A--Yes.

Q--Then are you able to give me, approximately, the date on which you say the maximum, of what you would discuss as lack of efficiency of labour occurred ? A--I am afraid I cannot do that, sir.

Q--Well, may I draw your attention to this: In another investigation with which I have a good deal to do, the testimony was that the maximum both of wages,^{and} of lack of efficiency, was 1920 ? A--I think that is true, sir, but as far as the work with which I was connected is concerned I was not able to detect any outstanding evidence of an improvement in efficiency, as I say, until pretty near the end of the work on the canal. But, of course, the condition was, to a considerable extent, clouded by the fact that we had so many more men on the work from the fall of 1920 until the fall of 1921, and the conditions were hardly visible to the naked eye, as it were.

Q--But my information is, at least the evidence given in that case, and apparently agreed to by all parties, was that there was a very appreciable improvement in labour efficiency in 1921 over 1920 ? A--Yes, I believe that did occur, in the buildings trades at least.

Q--Well, I am told in a good many lines here, and then, 1922, I think improved over 1921 ? A--Yes.

Q--Well, then, let us go a step further, Mr. Acres. You have the estimate in September 30th, 1921, at a time when both labour charges and lack of efficiency were at their peak, and that gives you, approximately, \$45,000,000.

in 1922 that estimate is increased to between \$64,000,000 and \$65,000,000, an increase of almost 50 per cent. How do you explain that, what is your explanation?

A--There is no explanation that can be briefly given at all, Mr. Rowell.

Q--Well, I don't know whether you could give us the general lines, I don't want to go into detail now, because that will come when we come to the question of cost of construction? A--I cannot answer that question, Mr. Rowell, further than I have answered the general proposition up to now, that the question of those increased costs is simply a matter of examination and expert judgment. That is a matter that really cannot be discussed in a more or less offhand way, as it were.

Q--When did you reach the conclusion yourself that the Stewart & Kerbaugh estimate would be inadequate?

A--When the steam driven equipment we had started to work in rock in the spring of 1921 I saw pretty plainly then that they were going to fail us.

Q--You saw that was going to fail you? A--Yes.

Q--Did you form any opinion yourself as to the amount by which you would have to increase the estimates to meet that condition? A--No, sir.

Q--Then were you consulted -- I asked you yesterday and I think you said you were not, I just want to make it clear -- about the estimate of \$55,000,000 which Mr. Gaby states was given the Government in answer to the Prime Minister's ^{request} in 1921? A--I should imagine I was, Mr. Rowell. I was in touch with Mr. Gaby continuously through the whole of the work, and that matter would, undoubtedly, be discussed.

Q--Did you prepare any memorandum, or any estimate at all, on your branch of the work, as to what the increased cost would be due to the cause you have mentioned, the

failure of your shovels to live up to what you had estimated they would do.

A--Nothing was compiled on that basis, Mr. Rowell, until the request came from Mr. Gregory to prepare certain data. We had spent months up to that time in trying to bring our construction cost records, and overheads, into co-ordination and this work was in progress when we received the request from Mr. Gregory to supply the answer to certain questions for the Inquiry Commission. One of the questions had to do with the cost of the work, and discontinued the line of investigation we were carrying on ourselves in order to expedite the production of information in connection with this particular data that Mr. Gregory asked for, and the final estimate covering that phase of the situation was the estimate given to Mr. Francis, I think, last fall. It took us nearly six months to compile it, showing the actual cost of the work up to 31st March, 1921, I think it was.

COMMISSIONER HANEY: 1922.

WITNESS: Yes, March 31st, 1922.

HON. MR. ROWELL: I just want to see how the thing was developing: What would you have done if it had been a private concern that had to finance this proposition, a concern that did not have an unlimited supply of money, apparently, at its disposal, and required to know what the cost was going to be in 1921, having got the Stewart & Kerbaugh estimate of \$45,000,000 in the fall of 1920; were you in a position then to make any estimate? A--Yes, sir, I could have made an estimate at that time.

Q--You could have made an estimate? S--Yes, sir.

Q--And you could have advised the Commission at that time, if you had been requested to do so? A--Yes. The procedure, in a case like that, would have been to shut down the job entirely, discharge all the working force, and get to work to find out where we stood.

Q--Well, would it be necessary to do that before you could estimate what it was going to cost you to go ahead and finish?

A--It would have been absolutely impossible to do it any other way, sir.

Q--Why? A--Because conditions were changing so from hour to hour, and the amounts invested were so much that the whole question of capital cost was such that you could not possibly make an estimate that would keep up with the work. You would have had to suspend ^{actual} operations altogether and concentrate your activities on financial investigations. I give that as my opinion, somebody else might have been able to do it some other way.

THE CHAIRMAN: Q--Was your time so taken up with the operation? A--Not only that, but money was being spent so fast there in doing that work. I think I am right in saying that we did something in 1921 that was never done before. I think I am quite correct in saying, without throwing bouquets at myself or anybody else, that we did something there that was never done before, and we would have had to shut the work down and forget everything but the compilation of costs and overheads, because a week's time of estimate investigation would throw all your figures out of date.

HON. MR. ROWELL: Q--I don't just follow you there?

A--If you are on a job of ordinary magnitude, Mr. Rowell, where conditions are known, you have certain lines of activity, running along in certain conventional grooves; you know what it is costing per week, or per month, to keep those grooves functioning, and you can sit down and figure the conditions out, and be reasonably certain that the operations along these various grooves are functioning uniformly and continuously, so that you can say, as to a certain item, I think that probably will amount to so and so, within a few per cent, and

you can arrive at a figure, in that way, but, as I say, what I was trying to point out here was this: That all cost precedents that had been built up from time immemorial had been wiped out during the war, as if they had never been in existence; there was no precedent to go on, as far as cost was concerned on that work.

Q--You are missing, I think, the point Mr. Acres. I am starting on the basis of the estimate which Stewart & Kerbaugh had made, and in which you had concurred, in the fall of 1920 ?

A--Yes, sir.

Q--If you had passed the greatest fluctuations, and if you had reached more stable conditions, which you did in 1921, and in which year the cost of labour was not increasing but did, mid-summer 1921, commence to go down, I do not quite follow you why you say you could not have arrived at any estimate of the increased cost in 1921 over the estimate of Stewart & Kerbaugh in which you concurred in the month of September, 1920 ? . . . A--Yes, well, I don't know that I can explain it any clearer, or more precisely than I was trying to, Mr. Rowell.

Q--I just want to get what you have to say about it. Mr. Acres, I understand from Mr. Gaby that there was a check of the estimates in October, 1921 ?

MR. GABY: From May until October.

HON. MR. ROWELL: Q -From May until October, 1921, do you recall that ? A--I don't know, sir, upon my word; 1920 and 1921 were more or less of a nightmare as far as I was concerned. I don't want to give false evidence, but Mr. Gaby can confirm that.

Q--You do not at present recall checking the estimates ? A--No, there were such endless things being done, Mr. Rowell, and labour rates, and schedule of yardage, and figuring up what you were going to do next day. I guess Mr. Gaby knows,

and he should, and probably can give you that information.

Q--Is this a fair deduction, a fair statement --

A--Probably I will remember all about it when he mentions it.

Q--You were so much concerned, at this time, with the importance and difficulties of the work you had in hand that you devoted your attention exclusively to try to get it through ? A--Undoubtedly.

Q--Regardless, in one sense, of the cost of doing it ?

A--Well, in this way, Mr. Rowell, I think I can explain it in this way: If that work represents the ultimate, in respect of what can be obtained from the potentialities at Niagara -- I just say this in a general sense -- if I had given preference to the question of shaving pennies at the expense of an efficient, durable and workable installation, which would not only serve this generation, but generations to come, hanging would have been too good for me, because it isn't the cost of this thing that is going to count ultimately, it is what the project of that development is going to do for humanity as it relates in number to the population of this Province, and the question of capital cost will be forgotten, absorbed and wiped out long long before that plant is superseded by any other form of energy. You see, that plant is grinding out now at the rate of 90 per cent of all the potentialities that the Almighty put into the waters of Niagara. I think it will be a good many years before any other method of developing power will supersede the energy that is coming out of those generators at Queenston and, if you will look at it in that way, I do not think, as I say, that I was justified in shaving pennies. For instance, if I saw that I was going to exceed cost, in any degree, and saw the possibility of saving my face with the face of anybody else, by putting a little less sand, or a little less concrete, or a little less cement here or there, and so on, to cover up that increase, as I say, hanging would have been too good for me.

Q--Of course, you would hardly describe an increase of \$45,000,000 to \$65,000,000, Mr. Acres, almost double the original estimate of installation, as shaving pennies, would you ? A--I was discussing the situation from my particular standpoint of what I would be able to do on the job, seeing it from day to day. I could go on the job and I could say, now, here, just so that we will surely be on the safe side, you had better cut out a bag per yard of that concrete, we will take a chance of it standing up. I wasn't discussing the question from that aspect at all, I was speaking of what it would lie within my power to do as the man in charge of that work, if I had wanted to scamp the work to cover any possible excess cost, whether I realized those costs were going to be exceeded or not. You see, I made it my business to see, in connection with the work done there, that quality came first.

Q--Mr. Acres, just looking at it as one who comes to it fresh, what strikes one offhand is this, and I just want to get your view of it, that not only one estimate, but the estimate in January 1917, which included present and potential war costs, had proved quite erroneous, as you say, and you brought in experts from outside to check it up, and in going over the matter with these experts, after you had reached the peak of cost, you reached an estimate, approximately \$45,000,000 ? A--I do not think it had reached the peak of cost, it would be the peak of labour rates,

Q--Well, the peak of labour rates, you reach an estimate of \$45,000,000, and then it costs between 40 and 50 per cent over that to do the work. Now, that does not strike one as the penny saving you refer to, that is a tremendous sum of money, and if you have anything further to say on that, why, we will be glad to hear from you, if not, why all right .

A--No, I would very much prefer to let Mr. Francis' report speak for that because it involves factors of engineering

judgment, and I would not want to tie Mr. Francis' hands through putting myself in the position of giving information, or giving an opinion here orally, which I might find I would have to reverse completely in preparing the information that I am getting for Mr. Francis along precisely the same lines.

Q--Of course, it is a matter upon which the Commission is called upon to report, and on which they will have to form an opinion? A--I would prefer the Commission to allow that information to come definitely through Mr. Francis' reports because, I say frankly, it is the only basis upon which a reasonable conception of the thing can be obtained.

THE CHAIRMAN: Q--Has the Commission, Mr. Acres, any data of its own, independent of Mr. Francis, of which it has full knowledge on that subject?

A--It is from that data, sir, that we are preparing this information for Mr. Francis.

Q--And you have no information before you?

A--We had the information, we are simply compiling it, and co-ordinating it to put it in proper form for Mr. Francis. The basic records are available.

Q--Yes, but you have not compiled the records?

A--They are just being put in shape as we go along. We have tried to keep Mr. Francis supplied in the order of the programme he made out, and I understand his final chapter has to do with costs, and something, I don't know what it is. Anyway, the matter of costs is just in course of preparation now. We are taking those things up in the sequence Mr. Francis asked for.

THE CHAIRMAN: It seems to me it would be a very necessary part of the case.

HON. MR. ROWELL: Q--Since yesterday, I have had an opportunity of looking through the general report on the

Queenston-Chippawa development which was submitted to the Board in 1918, and there are one or two questions I should like to ask you about this. I notice Mr. Johnson's first report is dated February 7th, 1917, and, by the way, this is attached to your report to Mr. Gaby ? A--Yes, sir.

Q--I see your report to Mr. Gaby is dated September 26th, 1917, and Mr. Johnson's other reports are attached as Appendices to this report ? A--Yes, sir.

Q--Now, turning to Mr. Johnson's first report, which is dated February 7th, 1917, and addressed to Mr. Gaby, he states:

"According to your verbal request of October 3rd, I have taken under consideration the methods adopted by your assistants to determine the economical dimensions of the proposed power canal to carry 6500 second feet of water from the Chippawa River to a point above Queenston."

Perhaps Mr. Gaby will have to answer that; are you able to say when it was first decided to consult an outside expert in reference to this matter ? A--Possibly Mr. Gaby can give you more precise information than I can, Mr. Rowell.

Q--When did it first come to your attention ?

A--I really do not know. I had always had the idea myself that it would be advisable to call Mr. Johnson in, because I knew what he was, and how valuable his advice would be. It was discussed.

Q--Then I notice he states, -- you recall the Prime Minister's request for independent opinion on the matter, in his letter of December 12th, 1916 ?

A--Yes, I heard it read, sir.

Q--He is concerned in having the opinion of independent engineers, and an estimate of the total cost as well, of the power to be developed. I notice in this first report of Mr. Johnson's he states:

"I have confined my attention for the most part to the methods of attack of the problem without criticising the larger questions of judgment which have decided the choice of a canal instead of a tunnel, and without too closely scrutinizing the estimates of cost."

And then on page 2 of his report, he states:

"It may not be considered to be within the legitimate field of activity of an outsider to advise you as to what power is, or may be worth in your Province, but the best physical characteristics, all around, do not appear to conform with as low a valuation as \$6 per H.P. per annum, which has been adopted, previously, by your staff."

What is he dealing with there? A--The economic value of a horse-power at the switchboard, I presume, Mr. Rowell, that is, in figuring the economics of the canal. I think I get your meaning, I think I am quite safe in saying that he is not criticizing the estimate of cost of \$6 per H.P. as the price per H.P., but simply criticizing the propriety of using such a low cost as a basis for figuring the economic capacity of the canal. In other words, he means that you can well afford to use a price in excess of \$6 in figuring how much investment you are going to put into your waterway.

Q--Yes, that is what you understand? A--From reading it over there, yes, I think that is what he means.

Q--Then you requested him, or Mr. Gaby did, to make a further report.

HON. MR. ROWELL: By the way, I do not find your letter, Mr. Gaby, to Mr. Johnson requesting his further report, and setting out what you wished him to report on in this file. Oh, yes, it is in Mr. Francis' Chapter 07. Now, in this

letter Mr. Gaby says:

"Pursuant to our recent interview, and in response to your letter of February 27th, I am setting forth hereunder a summary of requirements of the general report you have been asked to make in connection with the proposed Niagara Development scheme.

The primary requirement is the preparation of comparative estimates covering the cost of developing and delivering to the low tension switchboard quantities of power from 300,000 to 900,000 H.P., by the use of a tunnel or tunnels, and by the use of a canal, giving due consideration to the value of any difference in head loss, and giving proper weight to the data upon which the respective estimates are based.

As bearing upon the relative merits of the canal and tunnel scheme of development, we would also ask you to discuss the following propositions:

(1) Which of the two possible schemes of development would ensure the more economical and effective development of the 200,000 horse-power now considered available ?

(2) In the event of the canal scheme of development being adopted for the 200,000 horse-power now available, would such method of use render impracticable the adoption of the tunnel scheme for the development of the remaining 700,000 horse-power assuming in this case, of course, that the tunnel scheme has been proved superior to the canal scheme on its merits ?"

Now, at this time, were you considering a larger scheme as well as the particular one in respect of which you had submitted the plans to the Government on January the 7th, 1917 ? A--I don't know what Mr. Gaby was considering,

Mr. Rowell, but I was considering everything that looked possible or feasible.

Q--I am speaking now from your standpoint as the Hydraulic Engineer. Were you, at this time, considering a larger scheme of development than that for which plans had been submitted to the Government on January 17th, 1917, or the possibility of a larger scheme?

A--I cannot say from memory just when I first began to think in terms greater than 100,000 horse power, it may have been from the very beginning, I don't know.

Q--I think the plan you submitted to the Government included up to 300,000, did it not?

A--You see, there are two viewpoints from which you have got to consider this, or consider a question of this kind. There is the purely engineering viewpoint, and there is the commercial viewpoint by the Engineer. The one scheme, of course, would be to determine, first, how much water you are going to be able to get from the Niagara River, under all conditions, in the future, and to build your plant for the use of that full amount of water.

Q--What I am anxious to find out here is, you are asking for a development from 300,000 up to 900,000, that is, Mr. Gaby is asking for it? A--Yes.

Q--And Mr. Johnson reports in April on this matter, and his report is included in your report to Mr. Gaby of December, 1917, so that I assume you are familiar with the whole situation? A--Yes, sir.

Q--Then, just tell us what was the larger idea at that time? A--The letter speaks for itself, Mr. Rowell, up to 900,000 horse power.

Q--I mean, what had you in view as a possibility of all the water available being developed at the higher head than at the lower head, the substantial part of which was

being developed? A--Yes.

Q--Just so that we will get the two plans before us, the plan that you submitted to the Government, or that the Commission submitted to the Government, in January, 1917, was a plan for a canal providing for a diversion of 6500 cubic feet per second, and which would enable you to develop up to a maximum of 300,000 horse power?

A--200,000 horse power.

Q--Then it would require a very large additional diversion to get you up to the 900,000? A--Yes, sir.

Q--And the only way you could get that additional diversion would be either by a larger allotment to Canada under the Treaty, or by carrying down, diverting into the Canal, and using the larger head waters that were already being diverted and used at the lesser heads in the other plants? A--I don't know anything about that at all, Mr. Rowell.

Q--Well, that would be the way you would get the water, wouldn't it? A--I don't know, I am sure.

Q--Well, were you considering, at this time, the possibility of acquiring the Ontario Power Company and developing a Canal that would be large enough to use that water at a higher head, or do you know?

A--I was not, sir.

Q--You were not? A--No.

Q--Well, then, I notice, in Mr. Johnson's report, in reply to Mr. Gaby's request, which is included in your report, Appendix 11, in section 8, paragraph 8, on page 2, he states:

" Having in mind the ultimate utilization of 30,000 second feet of water, it appears clear that the first canal to be undertaken should have a capacity of, say, 10,000 second feet instead of

6550, as hitherto contemplated. The difference in immediate cost is only about \$2,500,000., according to the estimates, leaving another \$1,000,000. to be spent in further excavation when the capacity is finally brought up to the 10,000 second feet requirement. The cost per horse power in canal capacity, for the extra 3450 second feet is only \$33. as against \$68. for the total of the smaller canal; therefore, in case the canal type of construction is adopted, it is recommended to complete the rock excavation for a capacity of 10,000 second feet in the first canal."

Is that the origin of the proposal for the change from a 6500 second feet canal to 10,000 second feet canal?

A--I don't know, I am sure, Mr. Rowell.

Q--Well, I mean so far as you are concerned?

A--At this remote stage of the proceedings it is very hard to say who thought of a certain thing first. These ideas have become so welded into the minds of most of us that it is almost impossible to ascribe any certain idea to any certain man at any certain time. I cannot say, I am sure.

Q--You cannot say? A--No, and I don't think anybody else could either.

Q--Well, upon getting this report, did you then take up the serious consideration of changing the plan, so as to make the canal of the larger capacity?

A--What was the date of this report, Mr. Rowell?

Q--April, 1917? A--I think that was just about the time that we did begin to think very seriously of the 10,000 second feet canal.

Q--Yes, about the time you began to think very seriously?

A--As I say, I would not say that it arose out of Mr. Johnson's opinion, or my opinion, or whose opinion it was.

Q--Well, about this time, I take it, it would not be much before this, because you had submitted your plans to the Government in January of 1917, in which there is no suggestion, as I recall the letter to Sir William Hearst, of this particular proposal in the plans then submitted? A--I don't know about that, I am sure.

Q--Then you reached the conclusion, whether you had the idea before, or whether it was suggested by Mr. Johnson's report, that that was a wise recommendation?

A--Yes, sir, no doubt about that whatever, in view of the indications we had at that time of a lively market for the power, and the hope of water being available.

Q--Yes. Well, the proposal involves much more than the question of a market for the power, doesn't it? Isn't it a change in the idea of the development? One proposal is to provide for the utilization of 6500 cubic feet per second, and the other proposal is based on the idea of developing a very much larger flow of water?

A--Providing a waterway for an increased volume of flow.

Q--Yes, based on either acquiring the right to divert a larger flow, or in utilizing power at a higher head than was being utilized at the lesser head at that time?

A--Yes.

Q--So that it is a pretty fundamental change in the design of the proposal, that is correct? A--Yes.

Q--Is this a fair statement, then, Mr. Acres, that upon the further consideration which you gave the matter during the summer of 1917, with this report before you, you came to the conclusion that the original proposed development which had been submitted to, and recommended

by the Government would not be the wisest development?

A--Yes, sir, quite so.

Q--Then in paragraph 1 of Mr. Johnson's report of April, 1917, he touches on the question of cost. He says:

" Pursuant to your verbal instruction of February 21st, supplemented by your letter of March 8th, I have taken under consideration the ways and means of providing for the ultimate development of some 900,000 horse power at Niagara Falls, with particular reference to a choice of waterways as between canals and tunnels. The estimates herewith submitted are based upon prices obtaining at the present time, which accounts, in part, for the wide discrepancy between them and your old estimate of the 6550 sec. ft. canal. They are drawn on a very much more liberal scale than that with which you have furnished me, but the same sort of judgment has been applied to the study of both schemes of development, and should, therefore, be correctly comparative."

Now, at this time, as you recall, and I will come to the memorandum made on this letter - Mr. Johnson directly questions the estimate, as to whether you could do the work for the amount that is estimated?

A--Apparently that is what he says, Mr. Rowell.

Q--Yes. Well, then, there is attached to this report a comment on it, and it does not appear from the comment who is the author of it, and I was just wondering if you could tell me. It is headed "Notes on R.B. Johnson's Report of April, 1917." Perhaps you can look and see if those are yours, or it may be they are some other

person's? A--Those are mine, Mr. Rowell.

Q--And it is a lengthy comment on his report. Just to deal with one point in passing: He recommended the tunnel scheme and you reported against the tunnel scheme - A--With reference to what report was that, Mr. Rowell, his first report?

Q--No, his second one? A--I don't remember.

Q--His second report? A--What is the comment there that gives rise to that opinion on your part?

Q--Well, in the first report in favour of the tunnel scheme, you recall that --

A--Well, I don't know that his report was in favour of the tunnel scheme.

Q--As I read it, that was the conclusion I came to, and, particularly, as I read your comment combating the tunnel idea, - perhaps I have not correctly summarised it, but that was my conclusion from reading it?

A--As I recollect it, in his report there was an inference to the effect that he had not taken the trouble to form an opinion as to whether he thought the tunnel scheme or the canal scheme was the better.

Q--Well, then, in his second report he was asked specifically to deal with that, and in his second report he does deal with it? A--He is simply reporting on the possibility of the tunnel scheme.

Q--And compares it with the canal scheme? A--What recommendation, or conclusion, does he come to? My recollection is a little hazy in that connection. As I recollect it, the only issue between Mr. Johnson and myself was as to the propriety of the open waterway for any capacity below 10,000 second feet. My recollection of it was that Mr. Johnson was not quite in favour, and agreeable to the open waterway for quantities up to 10,000 second feet, or more. The only

difference of opinion we had was in respect of quantities below 10,000 second feet. That is as I recollect the question now.

Q--Well, now, my conclusion was based from reading Mr. Johnson's report, and I refer you to paragraphs 21 and 22 of it. Paragraph 21:

" The canal appears to have no advantage over the tunnel, whereas it has objectionable features, not shared by the tunnel, in the infringement upon the landscape, the damage to abutting property, the nuisance and cost of providing and maintaining crossings, fences, landscape gardening, etc., through a stretch of country which will soon be thickly populated.

22. The present study is sufficient, in my opinion, to warrant the adoption of the tunnel type of development, but in case this is done, perhaps some further study might profitably be put upon the question, all things considered, of the most economical diameter to adopt for the first tunnel to be undertaken."

I think that is consistent with his whole report, and I would judge from that, taking the English language at its fair meaning, that he favoured the tunnel as opposed to the canal, and that is confirmed by your Commission, or rather by your comment on it, in which you argue that, for the purpose of the Commission, the canal is better than the tunnel, but as the canal is adopted it is not necessary for us to go into that at the present time. What I wanted to draw your attention to is your comment on Mr. Johnson's implied criticism of your estimates, on the first page of your notes, paragraph 1:

" In this paragraph Mr. Johnson mentions a wide discrepancy between the estimates in his

report and the original estimate covering the 200,000 horse power development. He states further that as the same sort of judgment has been applied to both his canal and his tunnel estimates, they should be correctly comparative.

In making this statement Mr. Johnson has apparently not taken into account a very vital factor affecting the comparison.

The construction methods and costs upon which the original 200,000 horse power estimate is based, involves nothing wholly new or untried, and furthermore they are based upon about three years of close and careful investigation of methods and costs on work of similar character, as for instance the work on the Welland Canal, the Erie Canal, the Chicago Drainage Canal, the Levee work on the lower Mississippi and numerous other smaller projects.

As a result of this investigation, a plant has been assembled for handling earth and rock excavation which is the last word in modern methods and cannot be duplicated on any other construction job at the present day. With this plant and with the help of electric power, it is certain that a new mark can be set for earth and rock excavation cost. At the same time the unit costs adopted in compiling the original 200,000 horse power estimate were in no case lower and in some cases higher than the actual costs which have obtained on the Welland Canal and on the Chicago Drainage Canal. On top of this again there has been added a big contingency percentage. It is therefore practically certain

that the unit prices in the original estimates can be met even under the working conditions which prevail at the present time.

In other words, the economy which will result from the use of the heaviest type of modern excavating plant, and the use of electric power, will offset the tendency of the present war conditions to increase the cost of the work beyond what it would have cost if done with the ordinary type of small steam-driven plant in normal times."

What I wanted to draw your attention to is, as late as April, 1917, while the war conditions were on, and with Mr. Johnson's criticism of your figures before you, the Engineers of the Commission still adhered to the estimates of November, 1916, and January, 1917?

A--Yes. That comment would serve as a very good answer to your question with regard to estimate No. 2A, Mr. Rowell.

Q--In what respect? A--Because it just summarizes everything I tried to explain.

Q--Yes? Well, if so, I am glad to have it down here, and it indicates, at least, that at that time you were satisfied your estimate was adequate, and considered it had taken into consideration all possible contingencies?

A--Yes, sir, that was my judgment at that time.

Q--Your comments on his figures throughout are simply to that effect, while they may have formed some basis for comparison you think his capital costs are too high?

A--Apparently from what I say there, yes, sir.

Q--His estimates are given here and they are substantially higher than your estimates? A--Yes.

Q--That is all, Mr. Acres, you will try and get for me those plans you are going to turn up, those original plans?

A--I will try to do that, sir.

W.W. POPE, examination resumed by HON. MR. ROWELL:

Q--Have you been able to locate, Mr. Pope, the estimate, or any document, in which 55 millions is given, as the estimate in 1921? The letter of Sir Adam Beck to the Prime Minister, as I mentioned yesterday, dated December, 1921, states:

" The estimates submitted by the Commission to the Government on 27th January, 1921, for the appropriations required to carry on the work for the completion of the first 5 units at a total cost of about £55,000,000, were based upon actual estimates of the same Engineers."

A--What date is that letter?

Q--This letter is dated December 17th, 1921?

A--Sir Adam Beck's?

Q--Yes? A--I have had no time to look at any document, since I got away from here last night, and I attended a Board Meeting at nine this morning and broke from that and came here, so that between that and nursing a bad cold I have not had much time to devote to anything else. Mr. Gaby may have those estimates, I don't know. He is more familiar with the estimates.

HON. MR. ROWELL: Mr. Gaby, have you any documents submitted to the Government to which the Chairman of the Commission apparently refers when he states that on the 27th of January, 1921, the Prime Minister submitted to the Government the appropriations required to carry on the work for the completion of the first 5 units at a total cost of about £55,000,000.?

MR. GABY: What was referred to there, Mr. Rowell, as I remember it, was simply the estimates, the appropriations which were requested from the Government

• for certain moneys which totalled somewhere in the neighbourhood of \$55,000,000. I don't know that there was any specific statement made to the Government at that time, and on the 27th of January what we forwarded to the Government, or to Mr. Drury, was a compilation of all the estimates of Mr. Cooper, correspondence in connection with same, Messrs. Stuart and Kerbaugh's report, the report of Mr. R.B. Johnson, and reports of Mr. R.S. Lea. They were forwarded, I believe, on the 27th of January to the Government, in a letter addressed to the Government by myself, Sir Adam being out of the country at that time.

HON. MR. ROWELL: Yes. Well, now, I have here a copy of the letter from the Acting Chairman addressed to the Prime Minister, dated January 27th, 1921. Do you think, Mr. Gaby, that would be the communication referred to in Sir Adam Beck's letter?

A--It may have been.

Q--Well, if there is any other communication of the 27th of January, I will be glad to see it. I do not find anything there showing 55 millions? A--No, I find a compilation of estimates, that I have referred to, sent to Mr. Drury, January 21st, 1921.

Q--Just let me see then what was said on January 21st, 1921.

MR. POPE: That appears at page 8 of the compilation of minutes you have there.

HON. MR. ROWELL: Mr. Gaby states that the compilation of estimates which is now produced, and which will be marked as Exhibit 27, was forwarded to the Prime Minister in the letter of January 21st, 1921, now in as Exhibit 21.

MR. POPE: That is referred to in the minute I read yesterday, of the 20th of January, 1921.

EXHIBIT NO. 27: Filed by : Compilation of
: Hon. Mr. Rowell : estimates.
: 22nd March, :
: 1923 :
:

HON. MR. ROWELL: Mr. Gaby, will you point out where, in this volume, the estimate of 55 millions is?

MR. GABY: There is no estimate in that of 55 millions.

HON. MR. ROWELL: Then the Chairman of the Commission is, apparently, in error in saying that an estimate of 55 millions was submitted at this time.

MR. GABY: There is no estimate that I know of, but the Prime Minister's of the expenditures up to a certain date, totalling, approximately, Fifty Five Million Dollars, that is, the appropriations for 1921 and 1922. You have to add the both of them together to get that amount.

HON. MR. ROWELL: This letter of January 21st, 1921, Exhibit 21, represents an additional appropriation of 7½ million dollars. I cannot myself see how that gets the 55 millions.

MR. GABY: No, you cannot get 55 millions from that, you have got to add the expenditures up to October 31st, 1920, the appropriations for the year 1921 and 1922, to get the 55 millions.

HON. MR. ROWELL: I see. Then, was there a tabulated statement showing that result submitted to the Prime Minister?

MR. POPE: Not that I can recollect at the present time, there may have been, I will have to look it up.

Q--Now, at the time the Prime Minister requested this information, as to the estimated total cost, that is, in the fall of 1921, did the Commission have any information before it whereby it could give the Prime Minister the information as to how the estimates had been increased from

the 55 millions said to have been given in the spring of 1921, to 65 millions at the fall of 1921 and the beginning of 1922, or had the Commission anything compiled, to your knowledge, that would enable them to give that information? A--I understood that that was taken up by the Chairman with the Prime Minister - I don't know whether Mr. Gaby was present - and had been gone into thoroughly and explained thoroughly to them, and what documents they had before them at that time I would not know.

Q--You have no personal knowledge? A--No, I would not know.

Q--Then just let us look at the Board Minutes, Mr. Pope, if you please, of January 11th, 1921. Just read the note there to us in reference to the Chippawa, re additional cost of increased Chippawa development? A--Well, I have got, on that date, seven or eight different Chippawa matters.

Q--Perhaps your assistant can point out the note to you? A--It is page 386. The first entry I see here is page 386:

" Approval was given for the expenditure of 4 millions."

Q--Is that January 11th, 1922? A--1921, you were asking me for.

Q--Well, it was 1922 I intended, but if you have got a note there for 1921, give it to us? A--I have got a series of them for 1921, January 11th, 1921.

Q--I meant 1922. This is a Minute in reference to the estimated cost of completion? A--Each one of these matters that are presented to the Board is a report and recommendation from the Engineering Department, which gives full detail of what it has reference to and that, as I say, causes an amount of discussion in connection

with the Board.

Q--Mr. Pope, I am still confining myself to the estimates for the total cost of the work, I am not now dealing with details. What page is that of your Minute Book?

A--This is January 11th, 1922, page 434.

Q--Now, will you just read that minute, please?

A--"A statement setting out details in connection with the additional cost of the Chippawa Queenston development was presented, noted, and ordered to stand pending further examination and explanation by the Commissioners. It was decided that information of this character should at all times be submitted to the Board before being sent to the Government."

Q--Well, now, what was the occasion of that note, will you tell us, Mr. Pope, please? A--Well I don't, from memory, recollect. I presume there was some inquiry for these particulars, and they had been prepared and presented to the Board to know whether I should send them forward or not.

Q--Yes, I will come to the report afterwards, but I am only now interested in this note. It was decided that information of this character should at all times be submitted to the Board before being sent to the Government. What question was up that called for that particular note being made in the Minutes?

A--I cannot recall now, it speaks for itself, that the Board should determine whether the matter should go up or not.

Q--Well, it would look as if, at least, one possible interpretation would be that information had been sent to the Government, or might be sent to the Government, without the Board first passing upon it, and that it was intended to stop that practice?

A--I don't think so.

Q--Well, I just raised it to ask if you could give any explanation ? A--I cannot tell you.

THE CHAIRMAN: Q--Was there any discussion on it ?

A--I presume there must have been some ^{to lead} up to that.

Q--But you don't recall any ? A--I don't recall any. Of course, a discussion does not always get into the minutes.

Q--It goes into your mind, perhaps ? A--I have no distinct recollection.

HON. MR. ROWELL: Q--Can Mr. Gaby give us the report that was then submitted to the Board, and noted and ordered to stand pending further examination by the Commission ? Mr. Gaby, have you got that report ?

MR. GABY: No, sir, I will have to look that up.

HON. MR. ROWELL: If you will kindly look that up, I am rather anxious to have that.

Q--When, will you turn to the minute of February 13th, 1922. You have got the abstract there for 1922 ? A--No, we have no abstract of 1922.

MR. ALLEN: There is no abstract yet, it has not been printed so far.

HON. MR. ROWELL: Q--This is the note I have of it, February 13th, 1922:

"Re additional expenditure, Chippawa Development.

A communication from the Prime Minister dated January -- "

and then, in brackets, is put "Feb" with an interrogation --

"8th was read before the Board asking for a statement of additional expenditures and particulars respecting the costs arising out of the Chippawa Development. The matter was given careful consideration and a full statement

was ordered to be prepared and forwarded to the Premier."

WITNESS: This is 1921, Mr. Allen.

MR. ALLEN: No, 1922.

WITNESS: No, I beg your pardon.

MR. ALLEN: You have got the wrong page.

WITNESS: All right, thank you. I will have those books here after adjournment.

HON. MR. ROWELL: Until we get the report that was before the Meeting on January 11th, you will not be able to say whether it was the same report that you had before you on January 11th, referred to in February 13th Minute.

MR. GABY: February 8th is the communication from the Premier.

HON. MR. ROWELL: It says that the matter was given full consideration and full statement ordered to be prepared and forwarded to the Premier. I presume the statement given, pursuant to that Minute, would be the letter of February 10th from the Chairman of the Commission to the Prime Minister. This letter will be Exhibit No. 28.

EXHIBIT NO. 28 : Filed by : Letter dated
: Hon. Mr. Rowell : February 10th, 1922,
: 22nd March, 1923 : from Chairman of
the Commission to
the Prime Minister.

WITNESS: That is a letter from whom to whom?

HON. MR. ROWELL: From the Chairman of the Commission to the Prime Minister. The Premier's letter and this reply will go together.

A--What is the date of the Premier's letter again?

Q--February 8th, 1922. I think the Premier's letter was put in yesterday, perhaps. It is the letter of the

Premier to the Chairman of the Commission, which was considered, apparently, at this Meeting of the Board, and then the reply of the Chairman of the Commission to the Prime Minister, dated February 10th, 1922. The two might go in as one Exhibit.

WITNESS: Then there is a further note here, February 14th:

" Statement of the funds required for immediate use in connection with the Chippawa development was considered and ordered to be furnished Commissioner Carmichael without delay, in order that he may submit same to the Premier."

That is in your notes that you have from the Minutes.

Q--Yes. Can you tell me, from your records, whether any statement was submitted? A--I am going to have those books here after lunch, Price-Waterhouse will have to let me have them.

HON. MR. ROWELL: Well, perhaps, just at this point, I would like to see this report before going on with this further, Mr. Chairman. It is near one o'clock.

THE CHAIRMAN: Yes, we will adjourn until after half past two. Is there anything else to be produced?

HON. MR. ROWELL: Well, if Mr. Gaby would get for us the report which was before the Commission, and referred to in this Minute of January 11th, 1922, as having been considered by the Commission.

Proceedings stand adjourned at 12:55 p.m.
Thursday, 22nd March, until 2:30 p.m.

AFTERNOON SESSION.

, Toronto, March 22nd, 1923.

HON. MR. ROWELL Resumes examination of MR. POPE.

Q--Mr. Pope, have you the statement I asked for?

A--No, it was not ready, I understand Mr. Gaby will bring it this afternoon.

Q--I do not need to trouble you about the letters that passed between the Prime Minister and the Chairman, in which they discuss what took place at certain conferences, as you were not present? A-- I was not.

Q--Except, I see that the Chairman of the Commission, in his letter of February 10th, 1922, directed to the Prime Minister, gives the then estimated total cost at \$65,365,603. I notice in this letter the Chairman states that the plant, building and stores, less estimated salvage value of the construction plant, building, and stores, costing \$18,977,600.⁵⁸ I presume that means in connection with the construction of the work the Commission expended for plant, building and stores the sum of \$18,977,600.58.

A--Evidently,

Q--And, from that estimate, there will be salvaged \$3,500,000? A--Yes, sir.

THE CHAIRMAN: Within what period?

HON. MR. ROWELL: During the period now in question. If that were correct, it would leave the net cost for plant, building and stores used on the work, \$15,000,000?

THE CHAIRMAN: What is the "period now in question?"

HON. MR. ROWELL: That would be from February 1922 to February 1923.

THE CHAIRMAN: Would that be for the year 1922, Mr. Pope, that they expected to recover that amount?

A--No, it is salvage they hope to sell--it is not all sold yet.

COMMISSIONER HARRIS: There has been about \$2,500,000 worth sbld? A--I cannot say offhand, there is a lot of it left yet.

HON. MR. ROWELL: I think it must refer to the dates mentioned in the earlier items. Perhaps we can just give a summary, for the purpose of the record. There are just a few items. I refer to paragraph four of the letter of the Chairman to the Prime Minister.

"The following is a summary (referring to cost) expended to October 31st, 1921, including \$4,591,132.46 of the interest, \$57,562,742.03. Estimated expenditure to May 1923, to complete the five units by January 1923, including \$8,000,000 estimated for the current fiscal year as above stated, \$9,302,861. The total to complete, with interest to October 31st, 1921, \$66,865,603.03.

Further estimated amount of interest to complete, chargeable to capital cost, \$2,000,000.

Total capital investment to complete, including interest, \$68,865,603.03."

Then comes the item of salvage.

"Less estimated salvage value of construction plant, building and stores, costing \$18,977,600.58 to be recovered during the period now in question, \$3,500,000 and the total is \$65,365,603.03."

A--I do not understand your \$15,000,000 worth of material on hand.

Q--That is the way it is put.

COMMISSIONER HARRIS: It is not material.

A--Building, plant and material would not be \$15,000,000.

HON. MR. ROWELL: It is \$18,000,000 here.

A--It wouldn't be, here. "Less estimated salvage value of the construction plant, building and stores, costing \$18,977,600.58 to be recovered during the period now in question,"

"3,500,000--"

Q--Which would leave the net cost of construction plant, building and stores, \$15,477,600.

COMMISSIONER HANLY: Which would be absorbed in the cost of the work.

HON. MR. ROWELL: Which would form part of the cost of the work.

Q--About that you have no personal knowledge, I assume, Mr. Pope? A--After a great deal of discussion of it, it is my recollection that those figures do not agree with the amount of salvage on hand; I know that we figured upon getting about 40 or 50 per cent salvage. Don't you think so, Mr. Harris?

COMMISSIONER HARRIS: The figures are taken from the auditor's report.

HON. MR. ROWELL: Of course, but on its face, to the uninitiated, at least, it strikes one as a very large sum for construction plant, and so on.

MR. POPE: That is all right, there is lots of it on hand for sale.

HON. MR. ROWELL: An amount not exceeding the original estimated cost. A--They have a very extensive plant there to sell, such as electric shovels.

THE CHAIRMAN: I think Mr. Gaby gave an estimate of the amount you would probably recover from that item; I do not think it was 40 per cent.

HON. MR. ROWELL: Mr. Pope, you referred to a Minute this morning when we were looking at these Minutes. I refer to the Minute of February 14, that deals with a request for funds. I will take those up in order.

A--What year?

Q--1922? A--I haven't the 1922 Minutes here.

Q--Can you tell me this, Mr. Pope, if the Commission had

Any estimates, or any reports, showing how these estimates were increased from time to time, other than those we have had mentioned here, to your knowledge? A--It would be quite impossible for me to tell you, under oath.

Q--If you do not know of any more, it is all right.

A--I would not say I do not know, but I do not recall at the present time, I have not had an opportunity to go through and see what we have. I scarcely think it is fair for you to put that question to me that way, because I have told you that my recollection as to the estimates is all I have to rely on. I had no direct responsibility with regard to the estimates, more than to pass them through as I was directed.

Q--Mr. Pope, you referred to the request of the municipalities, which you said had something to do with the passing of the second Act? A--Yes, sir.

Q--Do you remember when the by-laws that you have referred were submitted to the electors in the different municipalities?

A--At the Municipal elections in the fall of 1916, or January 1917?

Q--What about Toronto? A-- I think Toronto is a little different. Price Waterhouse have all these. It was a plebiscite and the question was submitted in addition to that, but the associations had met and sent in their resolutions, I understand.

EXHIBIT No. 29. : Filed by Hon. : By-law submitted at
: Mr. Rowell, : Toronto.
: Mar. 22nd, 1923. :

A--If there is anything turns on that, I can have all the by-laws put in.

Q--I understood you to say this is the same as the others.
A--I understand it is.

Q--There is no object in multiplying the documents, I just want the form? A--I want the fact.

COMMISSIONER HARRIS: Mr. Pope said that Toronto was different to the other municipalities.

A--Toronto may have been a little different, I would not want to commit the Commission as to that being exactly correct. I understand that is a sample, but I would like to look at the others before making a positive statement.

THE CHAIRMAN: It is a letter from you, the Secretary?

A--Yes.

HON. MR. ROWELL: From Mr. Pope to Mr. Barr of February 20th, in reply to a letter of February 3rd?

A--May I see the Price Waterhouse report? They have all the by-laws. You asked whether By-law No. 7739 is an example of the by-laws submitted to all the seventy-four municipalities, in January 1917. A considerable number passed the Commission, and I find one referred to in the Appendix "C" City of Toronto, on the identical question submitted to other municipalities, and dealt with as part of their by-law. Others, however, only deal with one by-law, while Appendix "C" deals with three separate by-laws. They may have had other material in the by-laws.

Q--By-law No. 7739 covers an item being submitted to the electors? A--Yes, that is right.

Q--If you think there are any by-laws varying from this one, you can let us have them. This letter, that contains the form of by-laws submitted, is the form submitted to all the municipalities? A--I am not sure whether it is.

Q--This by-law reads as follows:

"Are you in favour of having the municipality develop, or acquire from the Hydro Electric Power Commission of Ontario, whatever works may be required for the supply of electric energy or power, in addition to such

electric energy or power as is already obtainable under the existing contract with the Hydro Electric Power Commission of Ontario?"

Can you tell me, Mr. Pope, what information, if any, was given to the municipalities upon which they were asked to pass upon the proposal submitted to them.

A--Do you refer to the development of the Chippawa plant?

Q--What information was sent out? A--Meetings were attended, and matters explained to them by different members of, not only the Commission, but Electrical Associations, Municipal Associations, and it was explained so that they understood whatever was necessary.

Q--Was any literature prepared, or any statement prepared, by the Hydro Electric Commission, outlining the proposal?

A--I really can't tell you that, because I did not attend any of those meetings, I cannot tell you what was issued.

Q--You would know, or some of your staff would know whether any material was prepared in the office of the Hydro, and sent out? A--It was not prepared by me; I do not know what the different Municipal Engineering Departments used, in their explanations to the people.

Q--You have a Municipal Engineering Department in the Hydro?

A--We have a staff, called, "Municipal Engineers," and they have certain districts under their control, or charge, in connection with the various Municipalities in the Hydro system. And those engineers look after the interests of the Municipalities in their particular district. They would look after that.

Q--Who would be the man in your staff who could tell us about that, who would be the best man, that is, around January 1917?

A--I don't know, Mr. Gaby may be able to tell you. R.T. Jeffery is in charge of those men; he was not at the time.

THE CHAIRMAN: He may be able to bring in the correspondence.

A--Mr. Jeffery would only have charge of a district at that time, Mr. Chairman. Mr. Gaby would be able to tell who had charge of the campaign.

Q--There would be some correspondence between the Commission and the Municipalities, would there not, in sending out the proposed by-law? A--There probably would be between the engineers, probably the engineer in charge of the district would take it up and distribute them.

Q--Wouldn't they come from you? A--Might, or might be distributed direct to them.

HON. MR. ROWELL: We will follow that up, with Mr. Gaby.

A--The Government requested the Commission to get authority from the Municipalities to resume this work.

THE CHAIRMAN: There is nothing in the by-law about Chippawa? A--Not in the by-law--about Niagara.

HON. MR. ROWELL: Have you a request from the Government to that effect? A--You know that was discussed on the floor of the House when the Act of 1916 was passed, and it was stated at that time that when the consent of the municipalities was got, if they expressed their desire to take the responsibility, the Act would be changed. And it was in pursuance of that that the plebiscite was submitted, and it was in pursuance of the plebiscite carrying, that the Act was amended, and the Municipalities were made responsible, under the Act of 1917.

Q--I do not recall, but we will be able to turn up the debates in the House? A--You were in the House at that time.

Q--Yes, I was in the House at that time. We will be able to turn up the debates and see what took place at that time.

Now, what provision of the Act do you say was inserted in the new Act, pursuant to that by-law? A--Clause 6.

*6.-- (1) It is hereby declared that the Commission is to be a trustee of all the works constructed or acquired

"under the authority of this Act for the Municipal corporations which have heretofore entered or may hereafter enter into contracts with the Commission for a supply of electrical power or energy from Niagara Falls or the vicinity, but the Commission shall be entitled to a lien upon the said works until all sums expended by the Commission on account of the construction and equipment of such works have been paid.

(2) Upon the payment of the amounts expended by the Commission upon the construction and equipment of the works the Commission shall determine and adjust the rights of the Municipal corporations, having regard to the amounts paid by them respectively, and such other considerations as may appear equitable to the Commission and are approved by the Lieutenant-Governor in Council.

7.--(1) Subject to the approval of the Lieutenant-Governor in Council, the Commission may contract from time to time, with any company or individual for the supply of electrical power or energy from the works constructed or acquired under the authority of this Act to such company or individual.

(2) Any net profit made by the Commission in supplying power under subsection 1, after making provision for the cost of acquiring, constructing and maintaining the works by means of which the power or energy is supplied, shall be applied in payment of the cost of maintaining the works constructed or acquired and operated by the Commission."

Q--Was it under this Act that the Ontario Power Company was purchased? A--No, a special Act.

You will notice also by clause 4 that the original Statute in regard to contracts was amended. That is, the cost, under all original contracts, was fixed, and then

amended by making it the average cost.

Q--That is by clause 5? A--Four.

Q--It is 5 in my copy? A--4 makes a division of the column.

Q--Subsection 4 of 5? A--Yes, sir.

Q--Yes, it is under section 5? A--Yes, section 5, subsection 4. It changes the old schedule under the Act of 1908, and gives the average cost, and makes that agreement binding in all other respects upon this new work, and therefore it put the new work as a municipal scheme for the municipalities in the Niagara District.

Q--Was it your understanding, as Secretary of the Commission, that this Act of 1917, gave the Commission the right to proceed and put up these works in the manner in which they did, without any further approval by the Government as suggested?

A--Except to provide the money. Clause 3 of that Act makes it quite clear.

Q--Clause 3 simply gives the Commission the right to proceed to exercise all the powers given under section 3?

A--Yes, sir, that was the Government Act.

Q--The Act of 1916 is the Government Act?

A--The Act says: "for the construction and operation of the works in the said section mentioned, for the supply of electrical or pneumatic power or energy to municipal corporations which have heretofore entered or may hereafter enter into contracts with the Commission for the supply of electrical or pneumatic power or energy from the Niagara River or Welland River."

Q--That would be to dispense with the necessity of any further Order in Council, under section 3 of the Act of 1916.

A--That is what I understood would be the effect of it, sir.

Q--Did it in any way relieve the Commission from other provisions of the Act of 1916? A--Well, it varied it in some respects I think, I don't know just in what respect.

Q--Now, I notice in the Act of 1916, section 4, it says that the cost of the construction and maintenance of the works authorized by this Act shall be defrayed out of such money as may from time to time be appropriated by the Legislature for the purpose; and the works which may be authorized under section 3 shall be carried out and constructed as far as possible in such manner that the appropriations may in any one fiscal year not be exceeded by the cost of the work to be carried out in that year.

Was that the section of the Act under which you are operating in connection with the cost of the works, Mr. Pope?

A--That is 1916?

Q--Yes. A--We were operating under the Act of 1916, up to the time of the passing of the second Act; positively no work done on the canal until after the passing of that Act.

Q--I want you to look at this, because it is passed at your request. I do not think we will differ on it; there is nothing in that Act of 1917 relieving the Commission from the obligations of section 4 of the Act of 1916, in reference to appropriations as far as I can see; if there is anything, I would be glad if you would point it out?

A--I don't quite understand. That is the Act, I expect, that took the place of the Act of 1916, and made this a municipal enterprise, rather than a Government one.

Q--You are a lawyer, Mr. Pope, and I am, so let us see if we cannot agree on this. The Act of 1916 is the one which authorizes the work, and provides that the cost of it is to be provided by annual appropriations. The Act of 1917 comes along, and by section 3 it authorizes the Commission to exercise the powers such as contained in section 3 of the Act of 1916? A--Yes.

Q--And, so far as I can see, it in no way changes the basis upon which it is to be financed? A--Certainly it does, because

it makes the municipalities responsible, and gives the Commission a lien upon the works; the same as all the other Hydro Acts do. It puts the responsibility upon the municipalities to pay for it.

Q--But the final responsibility is, where are you to get the money to complete? A--The same as under the Hydro Act, from the Government, as a loan to be paid back in thirty years.

Q--Do you say you were not operating under section 4 of the Act of 1916, in applying to the Government from time to time for advances? A--What date, after the passing of the Act of 1917?

Q--Yes. A--Yes, I do say it applied under the Act of 1917.

THE CHAIRMAN: What took place under section 4 of the Act of 1916? A--Section 4 of the Act of 1917 took the place of the Act of 1916.

Q--Of the whole of it? A--Practically, because that was Government work, and it was made municipal work, and the municipalities were made responsible, and they gave a lien on the property for moneys that the Commission might expend.

HON. MR. ROWELL: Where does the Act of 1917 make any provision for the financing of the enterprise?

A--It brings us under the ordinary Power Commission Act.

Q--What provision? A--I refer to clause 6, which reads as follows:

"It is hereby declared that the Commission is to be a trustee--"

Q--Is there anything in the Act of 1917 repealing the Act of 1916, in any respect whatever? A--Not in so many words, no.

Q--Well, then, what provision is there in the Hydro Act itself

under which you are operating in getting moneys for the construction for this plant? A--Under the Hydro Act, which provides how the money is to be furnished by the Government, and how we are to get it, and account for it.

Q--You are more familiar with it than I am, can you tell me what the section is? A--It is in the General Hydro Act. I have not got that Act here at the moment. It makes contracts, that were in existence, binding.

Q--I want you to refer me to the part of the Act that provides for financing, if you will just refer me to the section, if you have it there? A--You are as familiar with this Act as I am.

THE CHAIRMAN: That is saying a good deal?

A--It is Clauses 13 and 14 of the Power Commission Act Proper, Revised Statutes of Ontario, 1914, 14(a) and so on.

HON. MR. ROWELL: 14 is the general authority under the Hydro Act authorizing the Government to raise money by the way of loans? A--For the Commission.

Q--For the Commission. Section 14 reads as follows:

"The Lieutenant-Governor in Council may from time to time raise by way of loan in the manner provided by The Provincial Loans Act such sums as the Lieutenant-Governor in Council may deem requisite for the purposes of this Act--"

A--Yes, sir.

Q--14 (a) reads as follows:

"Where the Legislature has appropriated money for the purposes of the Commission, such money shall be payable out of such appropriation to the Commission from time to time, upon the requisition of the Chairman of the Commission and the direction of the Lieutenant-Governor in Council in such amounts and at such times as shall be

"stated in the requisition and direction, and this section shall have effect notwithstanding that there may be sums due from the Commission to the Province and notwithstanding anything in The Audit Act contained."

Now, if that is the way the Commission is governed in connection with this Chippawa development, under section 14, it is for the Lieutenant-Governor in Council to determine what sums shall be deemed requisite for the purpose of the Act?

A--No, what they do is to get an appropriation, and as money is asked for from time to time, it is requisitioned by the Chairman, and approved by Order-in-Council, and that authorizes the Treasurer to pay the money over to us.

Q--I am only dealing with what this section appears to state?

A--That is the way it has been carried out by the Government.

Q--Section 14 authorizes the Lieutenant- Governor in Council to raise loans for such sums as the Lieutenant-Governor in Council may deem requisite for the purpose of the Act? A--Yes.

Q--It is the judgment of the Lieutenant- Governor in Council which is to determine how much shall be raised for the purpose of the Act? A--Yes.

Q--Then, it does not become available to the Commission until after the Legislature has appropriated the money under 14 (a)?

A--You can tell that better than I can; I have no opinion to give on that.

Q--That is what I understood you to say? A--The Statute is there, you can put your own interpretation upon it.

Q--Then, if the responsibility rested upon the Lieutenant-Governor in Council to determine from time to time what sums should be deemed requisite for the purpose of carrying out the Act, it was essential, was it not, Mr. Pope, that the Government should be kept fully advised of the total expenditures involved, in order that they might meet the responsibility

under this section? A--No, doubt.

Q--Also that they should have all necessary information to enable them to exercise the judgment which this section requires they should exercise in order to determine the amount requisite for the purpose of the Act? A--I am not prepared to give an opinion of what they would care to do, sir. I cannot direct the Government.

Q--Then, Mr. Pope, when the Commission started work on this development, they submitted certain estimates from time to time to the Government of the amounts they were requiring from year to year in connection with the work?

A--Yes, sir.

Q--As a general rule, were these estimates submitted by you, as Secretary of the Commission? A--I say, as a rule, yes.

Q--Who furnished you with these estimates you submitted?

A--They were furnished by the Commission.

Q--You say, "furnished by the Commission," I mean who prepared them? A--I think there would be a good many would have to do with it, the estimating staff is a very large staff.

Q--Who reported to you on these estimates? A--Nobody.

Q--From whom did you get the information about the estimates?

A--I got that from the Board meeting.

Q--How did the Board get the estimates? A--They would be presented to them by the Chief Engineer.

Q--Was this the procedure followed: The Chief Engineer would, each year, present to the Board his estimate, the Board would approve of it, or otherwise, and when the Board took action, it would come to you from the Board for presentation to the Government? A--Well, it might be taken to the Government direct by the Chairman of the Board, or they might deal with it direct to the Government without going through me at all.

Q--Mr. Pope, without taking time to go into details, over

a long period, I want to get the general practice, is that a fair statement of the general practice? That is what you suggest in your own language? A--The Commission prepared their estimates each year, which were submitted to the Government, for all the requirements of the system. When the estimates were approved by the Commission they would be sent to the Government; they may have been handed to a member of the Cabinet, who was also a member of the Commission--there was always a Cabinet Minister on the Commission--and the Chairman of the Commission may have taken the estimates direct to that Cabinet Minister, or they may have been sent through me. The estimates would have to go to the Provincial Treasurer, or the Minister in charge of Hydro matters would take them up himself direct, and they would be discussed, and when passed, would be approved along with other matters required to be dealt with, probably individually rather than collectively.

Q--Do you say that these estimates were always passed upon by the Board before they went to the Government? A--Yes, sir.

The main estimates, yes.

Q--What do you mean by the "main estimates," as distinguished from any others? A--They went up for the whole Hydro requirements. We are asked to give an estimate at the end of the preceding year, and we did that, with such explanation as the Commission could make with the information before them, and these estimates are dealt with when the House meets.

Q--These would be items that would appear from year to year in the main estimates? A--I presume so, and there would be supplementary estimates, and all sorts of things.

Q--What do you include in the "main estimates?"

A--I cannot tell you that, because I did not prepare them. You cannot get particulars of the estimates from me, because I haven't sufficient knowledge to give you the details of them intelligently.

Q--I just want the procedure from you, you are the Secretary of the Board, and the main estimates would come before the Board in that way, including all other work that the Board was carrying on? A--Supposed to go on for that immediate year.

Q--You spoke of "supplementary estimates."

A--The Government had supplementary estimates, yes. Whether those would appear in the main estimates, or in the supplementary estimates, I am unable to say how the Government treated them.

Q--I am not concerned with it from the Government standpoint, only from the standpoint of the Commission, and I want to know if you included in those estimates which you sent in the total estimated amount required for all the works the Commission was carrying on, if you did so, what was the occasion of any further estimates for that year? A--Estimates to cover the completion of work not contemplated at that time, but subsequently found to be necessary, therefore it was necessary to make a separate application for the additional purpose.

Q--Where do those items appear that you speak of as being included in the supplementary estimates? A--I don't know whether they would appear in the Government records.

Q--You followed those things pretty closely?

MR. GABY: I think Mr. Pope is a little confused. The main estimates are made a year and a half to two years ahead

and when it is ascertained that additional amounts have to be expended, a supplementary estimate is made.

The estimates are now being made for the year 1924, and they will go through as the main estimates for 1924, and probably a supplementary estimate will be put in at the Session in 1924 to take care of conditions as then existing.

MR. POPE : Mr. Rowell knows that very well.

HON. M.R. ROWELL : We will get a fuller explanation with respect to that, when Mr. Gaby gives his evidence.

Q--I notice here, in the correspondence, a great many requests for Treasury Board warrants, what was the occasion of that? A--I do not know the occasion for it.

Q--I do not mean, any particular occasion, but I mean the practice? A--I cannot tell you that; they wanted more money I suppose. The request would tell what the money was wanted for.

Q--Mr. Pope, you are the secretary of the Commission, and you would know what the requisitions covered, for Treasury warrants to pay over sums of money, and you would know what was included in both the main and supplementary estimates. I am speaking generally. A--I cannot tell you generally, it is too broad a question to commit myself to.

HON. M.R. ROWELL : Mr. Chairman, Mr. Acres has asked me to permit him to clear up a point, and he wants to get away. I would ask that Mr. Pope stand aside so that Mr. Acres can give his evidence.

MR. POPE : I would be glad if you would let me go some time this week.

HON. M.R. ROWELL : It is at the request of the Commission

I am calling Mr. Acres, to permit him to make an explanation.

H. G. ACRES, Recalled. Examined by HON. MR. ROWELL.

MR. ACRES : What I wanted to mention, Mr. Rowell, was something that arose out of your question this morning with regard to the extract you read from Mr. Johnson's report of April, 1917. I rather left myself in a bad light, through lack of being able to refresh my memory as to what the report contained.

Q--What was the part? A--You may remember, I said that I thought that somewhere in Mr. Johnson's reports there were certain statements which appeared to indicate that we were not so much at variance in our ideas as to the respective merits of the Canal, and the Tunnel schemes. The particular section of the report you read would seem to indicate that we were at variance. I would just like to read into the record a couple of short paragraphs.

The report of R.B. Johnson of April 1917, page 2, para-5:

"If, however, the two types of waterway were to be compared strictly upon equal terms, as to wasted energy the first cost of the Canal would invariably show a small margin of advantage over the tunnel."

I just wanted to bring that out, to show that there are other factors that enter into an investigation of this kind, other than the item of cost, or even commercial feasibility. That is really, in other words, for conservation; I considered it my duty to consider ultimate conservation as one of the factors in considering the economics of this scheme. I think that paragraph in Mr. Johnson's report indicates that we were more or less in accord, so far as that phase of the

investigation is concerned.

Q--A perusal of the his report, Mr. Acres, shows quite clearly that the his view took into consideration all the factors to be considered in favour of the tunnel scheme as compared with the canal, is that fair? A--I am coming to it in a minute, Mr. Rowell. The cynic says that an honest man is just an ordinary liar who has an extra good memory; unfortunately, I have not an extra good memory, so, by being honest, I am at somewhat of a disadvantage as regards the particular point I brought out this morning, because it was not in this report, but in another report of Mr. Johnson's, which I found out later.

On page 4, para. 17. of this same report, Mr. Johnson said:

"It was to be expected that the two costs would not be irreconcileably different, for it usually happens that there is not a wide discrepancy, in this respect between any two well authorized and sensible methods of accomplishing any development."

That is all that is in that particular report, with reference to the argument this morning, and as I say,

I was under a misapprehension as to where the other expression came from.

THE CHAIRMAN : What do you mean, in this case, by the words "Ultimate conservation?"

A--It relates to development of the greatest possible effective head between the two Lakes. That is really what "wasted energy" means.

If I may have a copy of Mr. Francis' report, Cpp. C. of the Advisory Reports?

HON. MR. ROWELL : It is A. B. C. and L? A--That is it.

Q--In the meantime, while they are looking it up --

Q--I want to refer to the report of Mr. Francis, Chap. C., page 25, of the Advisory reports, where Mr. Francis has a section under the head "Report on Queenston-Chippewa development. R.D.Johnson."

Q--Of what date? A--June 1st, 1920. I will read this section from Mr. Johnson's report:

"The Commission's engineers very evidently had in mind the adoption of a plan which would conform with the broad principles properly understood to be exemplified in a public undertaking for the benefit of the people, and the ultimate conservation of water, with respect to the power rendered available, led to a more comprehensive layout than would probably have been attractive to private investors".

That simply carries out the point on conservation, on page C 26 of Mr. Francis' report. Mr. Johnson's statement is quoted as follows:

"Although the writer himself initially favoured a tunnel for a capacity of 6,000 to 10,000 second feet, yet he is not inclined to hold this position with the capacity materially increased, as now contemplated."

That is the statement I had in mind this morning when I spoke of it. The idea briefly being that while Mr. Johnson did not see eye to eye with me with regard to the capacity ranging from 6,000 to 10,000 second feet, he was in agreement with me having respect to the capacity ranging from 10,000 second feet upwards.

That is all I wish to bring out. It was my lack of memory this morning that rather got me in a hole, as to where that statement occurred.

Q--Just one or two questions on that, Mr. Acres, if you please. Mr. Johnson's report which was before you when you

decided in favour of the Canal, was, however, in favour of the Tunnel. A--I would say he was inclined to favour the tunnel at that time, yes.

Q--And the report you have now quoted, is a report made by Mr. Johnson in the summer of 1920, after the Government requested a report on the works? A--Yes, after he saw the kind of job we were doing, and had become more familiar with conditions governing the initial studies, and the conception.

Q--Tell me, will you please, what these reports cover, that are embraced in Exhibit No. 27? A--I really cannot tell you because I did not prepare the Exhibit.

Q--Will you see what is in it, I have not had a chance to look it through yet and just want to see what it is.

A--R.D. Johnson's report, Hugh L. Cooper's report, and reports of Stuart & Kerbaugh, and R.S. Lea.

Q--Let me ask you this, Mr. Acres, are those all the reports you received from the Advisory engineers employed by the Commission on this work? A--As far as I know they are, sir, yes.

Q--No other engineers were asked to report on it? A--No.

Q--And we have before us all the reports? A--I think so, that Exhibit appears to me to be complete.

Q--Then, Mr. Johnson, as I understand, made three reports, the first one in February, 1917, one in April, 1917, and one in June, 1920? A--Yes.

Q--And those are all the reports that Mr. Johnson made?

A--I think so, yes. The general idea of that series of reports was to have a discussion of the work in its then advanced stage, from the standpoint of construction by certain engineers, and from the standpoint of pure engineering, from other engineers. Mr. Lea, and Mr. Johnson considered it from the standpoint of pure

engineering.

Q--They did not go into the question of cost at all?

A--Not at all, simply the engineering features of the work as to engineering criticism.

Q--And the engineers who went into the cost, were Sturat and Kerbaugh? A--Yes, and Hugh L. Cooper.

Q--I have not asked you, but I take it you did not agree with Mr. Cooper's estimate of the cost?

A--No, far from it. That is more especially as to a combination of cost and working schedule.

Q--And your report to your superior officers, was that you agreed with Stuart and Herbaugh? A--Yes, sir.

Q--Just one other question, in connection with the work you did in 1921, when you found that the costs were running away from the estimates of Stunrt & Kerbaugh what instructions did you receive in reference to continuing the work?

A--I don't think I received any specific instructions, under that particular head.

Q--Did you report to your superior officer, Mr. Gaby, that the estimates would be greatly exceeded? A--As soon as I knew.

Q--Do you remember what date that would be? A--I think, as I said this morning, that that condition became evident in the spring of 1921.

Q--That is what you said this morning? A--I think in the late spring, and the matter, as I recollect, was in almost continuous discussion with Mr. Gaby from that time until we finished the work.

Q--Did you make any report in writing? A--Didn't Mr. Gaby say he had a report of the costs, I had forgotten about this morning?

Q--You said your estimate was prepared in the fall of 1921.

Now, speaking about that estimate, did you report to Mr. Gaby, as the chief engineer, that you found the cost of the work would greatly exceed the estimate Stuart & Kerbaugh made in the fall of 1920? A--I don't remember if there was any report made.

Q--You kept Mr. Gaby fully advised? A--I kept Mr. Gaby continuously advised as to conditions. We both knew what was happening.

Q--He was as fully informed as you were as to the items of cost? A--I think Mr. Gaby will agree that it was simply a question of jointly working out the problem of emergencies as they arose.

Q--That would be the drift of the whole policy? A--Yes sir.

Q--You were in daily touch throughout the whole period?

A--Yes.

Q--Your instructions were to continue the work? A--As far as any instructions I received, evidently they were, because the work was continued -- I presume had to be.

Q--I may want to ask you something after I have read these reports.

EXAMINATION OF MR. POPP REBURNED BY HON. MR. ROWELL.

Q--Then, Mr. Popp, just a few questions about the request for appropriations. Mr. Francie, in his report, Chap. K., part 1, has summarized these requisitions, commencing at page K 34, from which I see that there was a request for an appropriation in 1914, and the Government, during the session of 1914, voted \$35,000 for the investigation as to the possibility of further development at Niagara beyond the present plant operating there. That is the item you referred to yesterday, as to the earlier appropriation? A--Yes.

Q--There was no vote in 1914-15? A--I think not.

Q--In 1915-16, I see an estimate of money required for the fiscal year 1915-16 includes Niagara Development, and the amount is \$500,000. This estimate was apparently forwarded to Mr. McGarry under date of March 28th, 1916.

I see a vote in the estimates, Item No. 7, page 19. Hydro-Electric Power Commission, for capital expenditures, to be charged to municipalities, amounting to \$3,117,349.51. You have not got your file showing that? A--That would not be Chippawa, I take it that is the whole estimate.

Q--That would be the whole estimate? A--I think so.

Q--I want to get the Chippawa part of it; it is not disclosed in the estimate.

THE CHAIRMAN : I think, in your estimate, you divide the money by sections, do you not? A--We do not make the estimate without asking for certain information, so we can speak intelligently about it when the matter comes before the house,

Q--If you want money for Eugenia, you ask for so much for Eugenia.

A--It is classified as best we can.

Q--The requisition you send in would probably be more in detail, and would show the different sections for which it was required? A--Formerly I think they put it, as it was, is it not?

HON. MR. ROWELL : I see in 1915-16, item No. 9, on page 25, a further supplementary estimate for the fiscal year ending October 31st, 1916 -- an item for power development, Niagara-Queenston, to be expended as may be directed by Order-in-Council, \$500,000. That would be the first vote you got on this particular development, apparently?

A--No, I think 1914 was on the same development.

Q--Yes, the preliminary vote? A--Yes, preliminary.

Q--These two votes would be the earliest ones in connection with this matter? A--I think so.

Q--On Page 33 of the estimates, supplementary estimates, and further supplementary estimates, 1917, Niagara Power, development, Item No. 1. \$1,000,000. Would that be the full information that would be furnished to the Government at the time, in connection with that particular estimate,

A--I don't know sir.

Q--Who could tell us as to that? A--The material that went with it would tell.

Q--I see noted in Mr. Francis' report, this note:

"Amount specified covers cost of initial cost of canal and cost of necessary construction plant and materials."

Mr. Gaby is the only one who can tell us about that?

A--I don't know, possibly it is correct.

Q--Perhaps we can say this, as far as you are concerned, Mr. Pope. In all these estimates that went in from year to year, or all these requests for appropriations that went in from year to year, Mr. Gaby was responsible as the adviser of the Commission, who made the recommendation to the Commission? A--Yes.

Q--And he is the one who can give us the fullest information about it? A--Yes.

Q--Then, I wonder if Mr. Gaby has been able to turn up the report mentioned in the minute of January?

MR. GABY : No, I have not been able to exactly locate it from a perusal of the minutes. It may have been a report from the Accounting Department, or a report of mine. I have not been able to identify it yet but will get it as soon as possible.

HON. MR. ROSELL : I take it we have not got these

and the following is a list of the same.

1. *Chlorophytum comosum* (L.) Willd. (Liliaceae)

2. *Cladonia* (Lichenaceae)

3. *Cladonia* (Lichenaceae)

4. *Cladonia* (Lichenaceae)

5. *Cladonia* (Lichenaceae)

6. *Cladonia* (Lichenaceae)

7. *Cladonia* (Lichenaceae)

8. *Cladonia* (Lichenaceae)

9. *Cladonia* (Lichenaceae)

10. *Cladonia* (Lichenaceae)

11. *Cladonia* (Lichenaceae)

12. *Cladonia* (Lichenaceae)

13. *Cladonia* (Lichenaceae)

14. *Cladonia* (Lichenaceae)

15. *Cladonia* (Lichenaceae)

preliminary plans yet, Mr. Acres.

MR. ACRES : Those plans are being blue printed.

HON. MR. ROWELL : I think, Mr. Pope, as far as I know at present, that is all.

I understand, Mr. Lucas, there is nothing further you want?

HON. MR. LUCAS : No.

THE CHAIRMAN : You will be within call; Mr. Pope?

F. A. GABY, sworn. Examined by HON. MR. ROWELL.

Q---Mr. Gaby, you are the chief engineer of the Hydro Electric Power Commission? A--That is my title, yes.

Q---How long have you held that position?

A--Since the year 1912.

Q--That covers the whole period under consideration in connection with this Chippawa Development? A--Yes.

Q--Were you with the Commission prior to that date?

A--I have been with the Commission, in the coming May, for 16 years.

Q--You started in with them in 1907? A--In 1907.

Q--What was your position between May 1907 and the end of 1912, when you became chief engineer?

A--I may have been considered as Assistant to the chief engineer.

Q--Who was your chief engineer? A--Mr. P.W. Sothman, between 1907 and 1912.

Q--Then, to come more particularly to the organization of your office and staff in relation to this particular work, Mr. Pope has told us and Mr. Acres, that Mr. Acres was in immediate charge of construction under you? A--Mr. Acres was my first assistant in immediate charge of construction,

as far as construction is concerned and in connection with hydraulic engineering also, he was in charge of hydraulic engineering in connection with the Queenston - Chippawa plant.

Q--Who were your assistants in connection with the electrical part? A--Edgar T. Brandon was electrical engineer, in charge of railways and bridges, was Mr. T.W.Fairlie.

Q--Did Mr. Brandon, and Mr. Fairlie report direct to you in respect to their own branches of the work?

A--Yes, I was chief executive officer.

Q--They did not report to Mr. Acres? A--Only in so far as it was allowable for work already authorized to be carried on, construction work, in order to expedite the same. In other words, Mr. Acres was in charge of the construction, and reported to Mr. Brandon and Mr. Fairlie with reference to the work he had under his charge, after the work was authorized, and these two gentlemen reported direct to me in connection with the engineering.

Q--Just tell us in your own language how the work was carried on from the standpoint of the chief engineer? Say a given piece of work, take the development, after the plan is approved, to whom would you give your instructions? A--In the first place, a recommendation would be made and presented to the Commission, upon which we would receive approval of the work in general. Then instructions were issued to the various engineering departments to carry on the respective works, work orders were issued, and they would be authorized to go on under the work orders for the particular part of the work they were engaged on.

Q--You issued the work orders, did you, to Mr. Acres, Mr. Brandon, and Mr. Fairlie? A--Yes.

Q--For their respective branches of the work? A--Yes.

Q--And they were responsible to you for carrying out the instructions you gave? A--Yes.

Q--Now, take the question of purchase of plant and material, who was responsible for that? A--In the case of the purchase of plant or material in excess of \$500, the general ruling of the Commission is that a recommendation shall be made to the Commission, approved of by the Commission, and instructions issued to the Department of such approval. In the case of engineering works of large magnitude, which is undertaken by contract and handled direct by the various engineering departments, general classes of material that is handled direct by the purchasing department, there are specifications for the purchase of that material.

Q--Let us take an illustration; how does it pass from the Board to the Purchasing Department --from you as chief engineer? A--If the memorandum came from the purchasing department, the Commission would authorize a work order for the approval of certain expenditure for the purchase of materials, and would notify the engineering department that it had authority and they would notify the purchasing department to go ahead and complete the purchase. That is, the purchasing department acted as an auxiliary department to the various engineering departments in the purchase of materials for them. The same is true with respect to the construction department, if that department is involved in connection with the work. Of course, as I might enlarge on the organization, there is also Mr. Trimble in charge of the construction department, who had charge of certain installations of electrical equipment on the Queenston-Chippawa Development.

Q--Then all requisitions either for plant in connection with construction or for plant forming part of the actual development work itself would come from some part of the plant to you and would be passed on by you before being dealt with by the Board? A--Not all of it. If there was a general work order passed for certain amounts, they would be authorized to make the expenditure under that general work order, provided the material or equipment was authorized by the Board. Tenders for equipment, and tenders for large items, were presented to the Board for approval, and then I would authorize the different departments to make the necessary expenditure on those approved Commission approval numbers. There were also, in the case of lumber, cement, and stone, and heavier items of that kind, large general orders passed through the Commission for a years' supply of materials, and the requisition would be made direct by the Department.

Q--What record did you keep in your own files that are kept under your supervision as chief engineer, that would indicate the dates from time to time on which you gave orders either for work or for plant or material?

A--As the memorandum came through from the Commission, I would issue instructions, and that would be on file, kept in the general files under "Instructions to the staff from the chief Engineer." And those would refer to the Commission approval numbers as they went through. In the early days the various memoranda was placed before the Commission, and the authorizations of the Commission were not specified by approval numbers; but that has been the practice for several years, so that in the early period of construction of the Queenston-Chippawa development, it would be simply a memorandum from myself to the

department; practically all cases would be written memoranda, made verbally in some cases, and a copy placed on the file of the Commission. They would be kept on various files of instructions to the various engineers.

Q--Take as an illustration, the purchase of your equipment of electrical shovels and so on, where would they appear?

A--You would have to refer to one file of memoranda, for example, . for particular parts, in which Mr. Brandon is interested, or Mr. Acres, and so on, down to the various chief assistants and heads of departments.

Q--We can see the files to ascertain the dates on which orders were given from time to time? A--Yes.

Q--And where it was decided that the work should be commenced on any particular plan, agreed upon or approved, . in what form would you give your instructions, verbally or in writing? A--At the commencement of operations, for the initial construction, as a rule, the instructions were in writing. Some of the earlier memoranda may have been verbal, but the general rule is to make them in writing. You will find that is the case, that these instructions came from the Commission in writing to the various departments, which were dealt with by the Board, and then, if it was a matter in which I was interested and authorized to deal with, I would issue instructions by memorandum.

Q--Then we may expect to find in the records of the Commission the instructions given by you as chief engineer from time to time in connection with this whole Chippawa development?

A--Yes, it will either be found in that way or in the form of a work order signed by myself to the department head. In the initial stages of the work there may not have been instructions given by specific order.

Q--You haven't that file here? A--No. There are a large

number of files.

Q--Are you able to tell us, from your knowledge of the situation or any of the records available when the first order was given for work on this Chippawa development? I do not mean the preliminary survey in 1914, I mean the actual work?

A--You do not mean the engineering and our investigations leading up to the commencement of operations?

Q--No, I mean actual operations. A--I would say in January 1917. Previous to that time we had had instructions to go on with certain engineering parts, under Order-in-Council that had been received authorizing us to go on with it, and purchase the right of way.

Q--You purchased the right of way prior to that date?

A--Yes.

Q--Was there any change in your plans as to the purchase of right of way after that date? A--No, I don't think so. Because under the original estimates we contemplated purchasing a great deal more right of way than was necessary for the 100,000 H.P. development, or 200,000 H.P., and the plan for the purchase of the right of way has not been varied greatly from the original undertaking.

Q--You say you planned to purchase a good deal more right of way than you required. What was the capacity of the works that you had in view when you decided to purchase the right of way? A--The fore bay and the intake was 300,000 H.P., as stated in the original estimate, and I believe the plans, as I remember them now, provided that extensions could be made from time to time to these plans, by additional work and additional excavations -- wider canals, for instance.

Q--So as to give you what? A--So as to give additional

capacity. For instance, the original canal was only 6500 second feet, approximately 95,000 to 100,000 H.P., and the construction decided upon necessitated increased development.

Q--So that what you had in view originally when you purchased the right of way was the construction of a canal to discharge 6500 cubic feet per second, and when you wanted to increase your capacity, it meant putting in another canal of similar, or other capacity? A--That was the original idea.

Q--And it was with that idea in view that you purchased your right of way? A--Certain rights of way.

Q--And the rights of way you then purchased gave you sufficient area to put in two canals? A--Well, in many particulars, because you will understand that in buying the right of way even for one canal, it would probably necessitate, in order to avoid severance, the purchase of land on both sides, and we had to buy whole farms. On that account we probably purchased more than was necessary for the first Canal, not only properties necessary. We purchased farms that would probably be required for a second canal, but that did not interfere with the first one.

Q--Just to keep clear, as we go along, in the purchasing of the right of way, while you had in mind the possibility of a second Canal, you didn't purchase at the time any land that you didn't require for the first Canal, unless it was in the case of farms in order to avoid damages for severance? A--I don't know, we went out of our way to purchase extra land not required for, ^{or} interfering with the first Canal.

Q--That was done, part of it at least, during 1916, under the Order-in-Council you got? A--Yes, during the fall of 1916 there may have been small purchases.

Q--And these would be on the basis of the plans for the

development you had before you in 1916? They must have been, because you did not have any other plans before you at that time. --I would say, yes.

Q--and those plans Mr. Acres is sending up this afternoon?
A--Yes.

Q--Have you had an opportunity since the question has come up, of comparing those plans with the plan you put in of January 7th 1917? Can you tell us whether there is any material difference?

A--Well, with reference to the plans; I brought some plans up here that I believe were the plans they we had in our possession at that time; as to whether they are exact copies of those plans or not, I cannot say.

Q--Just show us what you had? (A plan produced) / That is the plan I referred to first, and is entitled, "Hydro Electric Power Commission of Ontario -- Welland and Queenston Survey -- a topographic map for proposed canal location -- submitted May 8th 1915."

That map shows the various areas in "rod." That shows the original proposed canal for storage areas, and also a line showing the can l location. Up to the whirlpool section it is located on the line used for the construction of the present canal and beyond the whirlpool location towards the Welland River, it is approximately in the location of the present canal.

Q--Is that the first plan in chronological order that you had prepared? A--As far as the engineers are concerned, I would say no, that we had sketches, and discussed studies, and so forth, in connection with it. It is apparently the first official plan submitted in reference to it; as to whether that was approved as to the construction of it, I cannot say.

THE CHAIRMAN: Would this be the one submitted to the

Government? A--That, I cannot tell you, sir. It is just a plan we have in our possession at the present time. These plans are most likely the ones that would be used for the submission to the Government at that time.

Q--It is referred to in the Act, so you can tell if it would be the basis of the Act? A--I cannot say whether these plans were submitted or not, all I know is that they are plans that were in existence at that time. There are no identification marks on to show that they were submitted to the Government in April 1916.

Q--Have you any record to show exactly what the plan shows? A--I have not made a very thorough search to identify any plan as being the actual plan sent to the Government. There may have been a sketch plan of this character. (Plan produced as Exhibit 31)

EXHIBIT NO. 30: Filed by : Plan entitled, "Hydro Electric
: Mr. Gaby : Power Commission of Ontario --
: March 22 : Welland Queenston Survey -- a
: 1923. : proposed canal location.
: : Submitted May 8th 1915.

EXHIBIT NO. 31: Filed by : Plan showing location of right-
: Mr. Gaby : of-way, 1915-16.
: March 22 :
: 1923. :
:

Exhibit 31 is one of the same type as Exhibit No. 30, which conforms to the change made some time in 1915-16, with regard to the location. That is another plan I obtained.

HON. MR. ROWELL: Mr. Gaby, would you not have much more comprehensive plans than those at the time you made the first estimate? A--I am just showing you those plans as showing the general profile of the ^{surface} of the ground along which we had located the canal, approximately, but you will notice it does not show the general rock elevation, as that was not known definitely at the time those plans

were prepared. This checks up with the cross-section showing 42 feet and 21 feet of depth of wetted area.

THE CHAIRMAN: What is the date?

---In the early part of 1916. The exact date submitted is, blank 1916. The plan is entitled, "A-3-2-15-D, showing the cross-sections of canal, and also the profile of surface of ground at the location of the canal." This is the one apparently, upon which the original estimates were based. This, of course, will be subject to revision if we find anything more definite of a later date.

Here is another plan prepared in 1915 showing the type of intake we had in mind at that time. It is entitled, "General plan of intake that conforms to river bottom, A-2-2-1-E."

<u>EXHIBIT NO. 32:</u>	Filed by	:	General plan of intake
	: Mr. Gaby	:	that conforms to river bottom
	: March 22	:	A-2-2-1-E.
	: 1923.	:	

I also draw attention to the fact that that plan has on it information that was not on the original tracing. Apparently a pencil sketch was put on at a later date, of the submerged dam at the lower end of the boom located near Hog Island.

HON. MR. ROWELL: I assume the Board would like to have the original plan marked?

THE CHAIRMAN: Yes.

WITNESS: Here is also a plan of the cross-section dated July 9th 1915, entitled, "General section of power plant fill A-7-1-8-C." Showing, as I stated, the cross-section, and also the proposed location for the transformer house above the power house.

The estimates for the Queenston-Chippawa Development

did not include any monies or expenditures on account of transformer house or transmission lines, it only included the forebay, head house -- it is called here -- and the power house and waterways leading thereto. There may have been revisions between that time and April 1916 that I do not know of at the present time.

EXHIBIT NO. 33: Filed by : Plan entitled General Section
: Mr. Gaby : of Power plant file L-7-1-8-6.
: March 22 :
: 1923. :
:

Here is a plan showing its early location, with the rights of way thereon. The data with respect to any right of way on this location was also available for the canal as constructed here.

MR. ROWELL: Is there anything on it showing the date? A--I do not think so. It fixes the date as to where the location was located in 1915, or the early part of 1916. It shows the "disposal locations" as used for the present construction.

Q--Does this give us all? A--That is all I was able to find today at noon.

EXHIBIT NO. 34: Filed by : Plan showing early location
: Mr. Gaby : of canal with rights of way,
: March 22 : showing disposal locations
: 1923. : used for the present
: : construction.

Q--Plans, as indicated by Exhibits 30, 32, 33 and 34 are the plans you had before you in 1915?

A--We had other sketches and plans, but as far as I can recollect, these applied to the estimates.

Q--Exhibit 31 is a further development?

A--No, Exhibit 31 simply shows the section of the canal, and profile of the ground, made in 1916.

THE CHAIRMAN: Have you any other plans?

A--We have no plans that can be identified as being part of the estimates, but in studying a problem of this kind, many studies are made in order to get a more economic and efficient proposition. I would say there are hundreds of plans but they would be of no interest because they would not be tied down. The plans you are interested in are those tied to the particular estimates before you.

HON. MR. ROWELL: Then, Mr. Gaby, in what respect, if any, does the general power development scheme as indicated on these plans, Exhibits 30 to 34, differ from the plan of January 7, 1917, which you put in yesterday?

A--In general, the scheme is the same in so far as the utilization of water for purposes of development is concerned, that is, we utilize the Welland River at Hog Island levels, and the levels at Queenston opposite the present ^{power} house -- they are identical as far as the use of water is concerned. The exact location of the canal varies, that is, in the plan produced here it shows a study of the use of storage immediately at the forebay or Queenston, and a slightly different location of the canal. That was necessitated by the contemplated use of storage at that location. The location of the headworks is somewhat different from the location of the transformer station. In this case the headworks are placed farther back from the brink of the bank, scarpment, or cliff of the riverside, and the transformer house was located very nearly on top of that cliff or embankment, and in the present development the headworks are located --

Q--Just a moment, Mr. Gaby, I am not now comparing with the present, I want you for the time being to confine yourself to a comparison between those plans Exhibits 30 to 34 inclusive, with the plan you put in yesterday of January 7, 1917?

Q--The plans of January 7, 1917 have the headworks located closer to the escarpment, and the power house located in approximately the same location, with the difference that the transformer station is combined with the power house.

Q--Do the plans of January 7, 1917 give us substantially the same power development as those plans of 1915 and 1916 varying only in details due to a further study of the question, or is there any material difference?

A--In general they are the same, as far as development is concerned. There is a variation in the location of the canal a variation in the type of power house, one being combined with the transformer station; but both are for approximately 200,000 H.P., with the installation of four units.

Q--Any material you purchased, or any right of way acquired up to say the middle of July 1917 -- just as an arbitrary date -- would be on the basis of these plans, or the plans of January 7, 1917? A--With the idea in view of the possible enlargement of the house, because at that time the work that was done, and the equipment that was purchased, and the right of way that was purchased, would be applicable not only to that development but to the enlarged development, that is, if the Commission so determined.

Q--Up to what time? A--You might say up to February, possibly, of 1917, after the right of way was purchased in 1916 on this plan.

Q--Any date you fix. I just want to get a fixed date -- up to February 1917 the right of way purchased, plant ordered, the different materials or supplies purchased, would be on the basis of these plans? A--On the basis of the original plans.

Q--Now, compare just briefly the development as covered by the original plans, which we will refer to as the plans of January 1917, with the plans sent to the Government in

1916, with regard to the work actually constructed. Tell us the main differences briefly ? A--Well, in the first place, do you mean as actually constructed today ?

Q--Yes. A--In the first place, starting with the intake in the Niagara River, the estimates then contemplated the simple construction of a basin in the river, at approximately \$900,000.

Q--Just excuse me, I think you have not understood me. I am not now dealing with the estimates at all, we will come to them. A--I am now dealing with differences.

Q--I want the change in design. A--In giving you the change in design, and going on to explain, I will probably mention the differences as they come along; I am now mentioning the figures in connection with it,

As I stated, in the original design, contemplated in 1917, there was an intake, and basin construction -- simple construction only, -- with a probable expenditure of some \$900,000. The present design as constructed has a capacity of 20,000 to 25,000 second foot, and it would cost possibly \$3,000,000 or more. The Welland River was used without, or very slight, excavation, without any ^{excavation} in the original design, that is, we provided for no ^{excavation} in the Welland River for the first 4 1/2 miles, while in the present design for five units it requires several million yards of excavation, I think it is four millions, from memory, in connection with the canal from Mountrose, which is 4 1/2 miles from the mouth of the river. The intake as now being constructed is being excavated to take care of five or ten units as required, while in the original estimate it only provided for sufficient excavation to take care of 100,000 or 200,000 H.P.

The rock section, which starts approximately a mile from Mountrose, is shown in the original plan as 42 feet, with

wetted area in depth of 21 feet -- that has been enlarged to 48 feet, wetted area to 40 to 50 feet, somewhere around there, depending on the section; while in the original plan there was no estimate provided for the concrete lining of the canal, it was simply an ordinary channel, or drilled section, and we contemplated that we would have to allow for a very much higher friction loss due to the character of the construction.

The details of the whirlpool section were not worked out, it was simply a rock section, with no concrete as at the present time.

The forebay was constructed for six units only, while at the present time it is excavated for nine units.

The units were to be of about 50,000 H.P. capacity, while they are now from 55,000 to 65,000 H.P. capacity, on the Queenston-Chippawa Development, and five units have been installed instead of four units as contemplated. The original estimate was two units, 100,000 H.P., or four units, 200,000 H.P.

Then there is the location of the headworks, and power house, the size of the penstocks, and the details as to the channelling, and the covering of these pipes. I am now referring only to the general features with regard to the difference between these two propositions. The detailed features varied from time to time, as judgment warranted, and there was an increase in expenditures, such as were warranted in our judgment in order to increase the efficiency of operation of the canals.

While I will not go into the details of the cost, there are a great many differences; in the one case, the section was not only wider, but much deeper.

Q--What I wanted was the fundamental change in the two plans, as to the change in the capacity of the canal?

A--The change in the size of the canal is fundamental. The general principles are the same in both, that is, the general location of the canal and the manner in which the water is carried in this canal to the headworks, and thence to the power house, is the same, but the magnitude of the two works is materially different.

Q--The work as originally designed permitted of the diversion of 6500 cubic feet per second, and the one as now designed, permits of a diversion of 15,000 cubic feet per second ? A--About 18,000 to 20,000 cubic feet per second.

Q--Do you suggest that the magnitude of the present work is twice that of the original ? A--Well, we had 100,000 to 200,000 H.P. in the original design, and now we can get 500,000 to 600,000, as far as capacity is concerned, it is three times approximately.

Q--Would you say it is an entirely different proposition ?

A--When you consider the magnitude, yes, it is not a different proposition with regard to development.

Q--Not as to the style of development ?

A--It is simply the increased magnitude of the original proposition.

Q--Will you tell me when you first seriously considered the change in the magnitude of the canal ?

A--I would say that probably it was in the minds of the Commissioners, because the matter had been discussed on numerous occasions that the general market required increased development at Niagara over that contemplated in the year 1915 -- in 1916 and 1917 it was under consideration. About the year 1916 the Commission had obtained all the surplus power that was available at Niagara by entering into a contract with the Canadian Niagara Power Company for 50,000 H.P.. In February 1917 I wrote a letter to Mr. Johnson, in

which we requested him to report on the increased size of the development at Niagara, varying from 200,000 to 900,000 H.P.

Q--I think perhaps we will get along a little quicker, if you would answer the specific question, and then, if there are any explanations, we will be glad to have them. All I am now concerned with is, I want you to fix as near as you can, the date ? A--I am trying to do that. You must remember this thing has been an evolution, and it has been a question in the minds of the Commissioners, as to how to meet the problem of furnishing additional power. It has been discussed on many occasions, although there may be no record in the Minutes. The Commission discussed the question of the shortage of power, and the necessity of getting greater development and providing for additional means of supply of power to those municipalities. The shortage was great in the year 1916, 1917, and 1918, so much so, that a Power Controller was appointed to enable the municipalities to get additional power, and conserve power in every way we possibly could.

Q--We know all that, Mr. Gaby. What I want to get at is the actual, practical work in connection with this work ?

A--I am trying to tell it to you, to the best of my ability, and give you the information in as full a way as I possibly can, because I cannot give you the information by simply stating that it was this date, or that date. Unless you have some reference in your evidence to show how you know it was that date, it is not clear.

Q--But, Mr. Gaby -- A--I will have to give you my knowledge as to these points, because I have been at many meetings of the Commission and I know what took place at the meetings.

Q--It will facilitate matters if you can give us the date.

I am just speaking generally. When I ask as to a date, if you can give the date, kindly do so; it is not necessary to give us the date and then enter into a lengthy argument, as to information you have that helps you to fix the date. If it is necessary to add an explanation, after giving a date, we will be glad to have you do it.

A--I do not consider that is argument at all, when I explain what took place in answer to your question. I have to show the reasons for the additional capacity contemplated.

Q--All I have asked you is the date when you commenced to consider the question of additional capacity?

A--I am trying to tell you. It is not only one date, but numerous occasions, on which this matter was considered by the Commission.

THE CHAIRMAN: Mr. Rowell is asking you when it began.

A--I would say ^{W^o} began in the Fall of 1916 --- to consider it. As to when it got into a definite proposition before the Commission, and they actually gave instructions to go on with it, that would probably be at a later date. It was a matter of discussion probably in 1916.

HON. MR. ROWELL: If the Commission had considered it at that time, and had had in view the increasing of the capacity, would it not have been fair to have informed the Prime Minister of the Province, of the fact, when he was pressing for full information in December 1916?

A--They had not decided.

Q--The Commission was replying to the Prime Minister in January 1917 in regard to the ultimate cost of the proposal.

A--Mr. Rowell, I stated that this question had been considered; but as to whether there was any decision to go on, or make any change in it, I doubt whether there was before 1917. When the matter was considered as a project which they could recommend, then the Commission would be in a

position to send that on to the Government. In January 1917 we sent along the information and the plans we had.

Q--Just let me draw your attention to the letter of the Prime Minister of December 12th 1916 , in which he asked for information. The Commission was the servant of the Government, at that time at least, and the Government had to take the responsibility of deciding.

I just want to draw your attention to paragraph 3 of the letter :-

"General outline of the scheme, showing in a brief way the plan decided upon, lands required, length of the canal, the extent and character of the work about to be undertaken.

4. Estimate of the time necessary to complete the works and have same in operation.

5. Total estimate of cost of the work and the amount it is intended to expend in each year."

Paragraph 8 deals with whether the work is to be done by the Commission itself by day labour, or by tenders, in which this appears :--

"If tenders are called for and reputable contractors bid on the work we will have something definite to gauge the ultimate liability assumed by the Province. Without tenders, we have nothing to guide us as to cost, but the estimates of the Engineers. Although I have no doubt the Engineers have estimated the cost on a liberal scale to provide for contingencies, nevertheless, if the actual cost should seriously exceed the estimate, and the Commission has not taken precaution to secure tenders, room would be left for severe criticism.

9. Has a report been obtained from an engineer of International reputation. (1) upon the advisability

"of the scheme as proposed, and (2) the cost of same ?- if so, a copy of the report of this engineer. If such a report has not already been obtained, I feel that it should be obtained at once. In asking for this report I am making no reflection upon the qualifications or ability of the regular engineers of the Commission, and my request contains in no way a suggestion that they are not amply and eminently qualified for the work, but I feel that it is not only a matter of prudence for the Commission and for the Government, but an absolute necessity for the protection of all parties concerned, that we should have an independent report of the most eminent engineer available on the whole question. This course seems to be doubly important if the Commission should decide to do the work themselves by day labour.

10. Who will be the Chief Engineer of construction, and what are his qualifications and experience in construction work of the character in question."

And this closing paragraph :-

"I would be glad ^{to have} the above information, and all further information and data that the Commission can supply in order to enable me to understand as clearly as possible the extent and character of the project we are undertaking, and reasons for adopting the courses that may be suggested to us by the Commission, and in order that I may be able to properly explain and defend whatever action the Government may take in the matter."

That letter came to your attention, Mr. Gaby ?

--I would say that I had prepared certain information for the answer to that letter, yes.

Q--You had that letter before you ? A--Apparently, yes.

Q--Knowing that the Prime Minister wanted the fullest possible information that the Commission could provide, to enable the Government to decide whether they would go on with this work or not ? A--Yes, and we gave them that information on January 12, 1917.

Q--Did you in any way suggest in your letter of January 1917 that there was any other plan or proposal under consideration, than the one covered by the plans you had submitted, of January 7, 1917 ? A--No, we did not, because I do not think there was any other plan decided upon by the Commission, they had no other plan to offer. They may have been thinking of it, or considering it, but they had no other plan to offer at that time.

Q--At that time the Government was called upon to decide whether they should proceed with this work or not, and the Commission was urging at that time for an Order-in-Council to give them authority to proceed with the construction, and you gave these plans of January 7, 1917 as the plans of the development proposed, and you gave the estimate of the cost embodied in the letter which has already been read into the record ? A--Yes.

THE CHAIRMAN: We will adjourn until tomorrow morning at 10.30.

(The Sittings adjourned at 4.40 p.m. Thursday March 22nd, 1923, until Friday, March 23rd, at 10.30 a.m.)

HYDRO - ELECTRIC INQUIRY COMMISSION.

TORONTO, FRIDAY 23rd MARCH, 1923.

PRESENT:

W. D. GREGORY, ESQ., Chairman.
M. J. HANEY, ESQ., Commissioner.
LLOYD HARRIS, ESQ., Commissioner.
R. A. ROSS, ESQ., Commissioner.
J. A. ROSS, ESQ., Commissioner.
J. H. W. BOWER, ESQ., Secretary.

QUEENSTON - CHIPPAWA.

ESTIMATES AND APPROPRIATIONS.

N. W. ROWELL, Esq., K.C. Counsel for the Commission.
J. B. ALLEN, Esq.
I. B. LUCAS, Esq., K.C.
F. A. GABY, Esq., Chief Engineer.
W. W. POPE, Esq., Secretary of the Hydro Commission.

FREDERICK A. GABY, Examination resumed by
HON. MR. ROWELL.

Q--Just on the question of plans, as I understood it,
the ones you presented yesterday, all the plans you had
in 1915 and 1916, that is, you may have had sets, and
other things, such as you have mentioned, but there is no
plan showing the outline of the work and the methods of
construction different from these?

A--And not in the same detail.

Q--Not in the same detail? A--Not that I can recollect

at this minute, although we investigated the files to see if there are any more.

Q--Then you furnished Mr. Francis the information, Mr. Gaby, on which he compiled those chronological charts, of which you have a copy ? A--Yes.

Q--That is in as Exhibit 18. I presume you have gone over this. Does it correctly set forth the information you gave Mr. Francis ? A--Well, as a matter of fact, Mr. Rowell, I haven't gone over it in detail, but I presume that he has correctly shown the information that we gave him.

Q--Well, if there is any point on which you think it should be corrected, will you let us know, because I do not want to proceed on the assumption that it is correct, and the dates are agreed to, but you will let us know ? A--Yes.

Q--Then you have also had before you Mr. Francis' report, Chapters "A", "B", "C" and "L" ? A--Yes.

Q--"A" being just the preface, "B" Historical, "C" Advisory Reports, and "L" Evolution of the Development, and this report purports to set forth also, under these different chapters, the information you have given Mr. Francis in the form of the records of the Commission, or verbal information where the records do not supply the connecting links ? A--Yes.

Q--You have had it for some time, Mr. Gaby. Is there any point in it with which you do not agree, or does it accord with your recollection of the records and the information given ? A--Well, in the copy that I have before me here, I have a few notes made on the side which, apparently, are just my criticisms at the time I read it over of various items in this report. Now, I have not looked at it since reading it the first time, but I just happened to notice that those were on the fly leaf to the side here, certain criticisms that I have made of this report.

Q--Yes. Well, you might go over your notes again, not now,

we won't take time ? A--I don't think they are material at all. (Mr. Gaby reads notes in question)

Q--Well, those are rather omissions than corrections ?

A--Yes.

Q--Well, now, if there are any corrections in matters of fact in which you think it is in error you will let us know?

A--Yes.

Q--Because I do not want to proceed on any wrong assumption. In the meantime, you might proceed on the assumption, however, that this does correctly represent the data in your books ? A--Yes.

Q--That is, insofar as it is reported ? A--Yes.

Q--There may be additional data ? A--Yes. Any change that I may have made is not a serious one, as I recollect in going over it.

EXHIBIT NO. 35 : Filed by : Mr. Francis' report
: Hon. Mr. Rowell, : Chapters A, B, C and L.
: 23rd March, 1923. : to the Inquiry Commission.

HON. MR. ROWELL: Then you have before you Chapter K, Part I. It is Analysis of Estimates, Chapter K, Costs, Part I -- Text. Does what you have said about the other report apply equally to this Part I ?

A--There is a correction I would like to make, Page K17. It is entitled "Summary List of Estimates of Cost of Queenston-Chippawa Power Development". These estimates refer to various estimates that have been referred to in documents of the Commission, such as the reports to the Government at various times, and official documents to the Commission, but, in addition to that, as stated before, we have had interim estimates, that is estimates made by the Engineers of the Commission; they are not included in this Summary of Estimates. A number of interim estimates

have been prepared at various times during the progress of the work, for the information of the Commission.

Q--Then, subject to that ? A--Subject to that I would say that it covers the subject, as far as I can see, at this moment.

Q--Covers the information you have in the Commission's office, and which you furnished Mr. Francis ?

A--I would like to qualify that. I only read it over hurriedly and not in detail with any object of approving of it in that way, but if there is any thing that I differ on, on further perusal of it, I will be glad to advise you of it.

Q--Yes, if you would let us know within a day or two. You see, I do not want to take time to go over the various matters in here in detail ?

A--But the point I want to make is that there were interim estimates made from time to time.

EXHIBIT NO. 36 : Filed by : Mr. Francis' reports,
: Hon. Mr. Rowell, : Chapter K, Parts I and II,
: 23rd March, 1923. : to Inquiry Commission.

Q--Then the other report, Mr. Gaby, before you is Chapter G, Contract Work and Other Construction Procedure?

A--I do not happen to have a copy.

Q--I presume what you have said in reference to the others applies to this also, it correctly sets forth the information furnished to Mr. Francis, either by way of documents or verbal information ? A--I do not know, Mr. Rowell, that I have ever read this report over at all.

Q--Well, perhaps we might mark it subject to your intimating to us if there is any point in it with which you differ.

A--Yes.

EXHIBIT NO. 37 : Filed by : Mr. Francis' report,
: Hon. Mr. Rowell, : Chapter G, to Inquiry
: 23rd March, 1923. : Commission.

HON. MR. ROWELL: Q--Now, Mr. Gaby, will you kindly take that chronological chart. From this it would appear that you commenced your surveys in May, 1914?

A--I believe that is correct.

Q--Had you done any work prior to this in connection with the development? A--Investigation and studies had been made in 1913, and may be 1912, simply from a study standpoint, of the possibilities of development, and an investigation into the various franchises that might have been in existence, and projects that had been contemplated by others than ourselves.

Q--Just tell us what the work during 1914 included?

A--Preliminary surveys and reconnaissances at various power sites, not only the Queenston-Chippawa Development but also the study of the development of power of what was known as the Georgian-Erie scheme, and other schemes of development in that district.

Q--Now, then, I see here that you commenced core drilling at Montrose on October 26th?

A--That would be in accordance with our engineering investigations, and we probably commenced exploratory data with reference to the underlying strata of rock and earth.

Q--As an aid to determine estimates or location?

A--Not as to location, no. Before that we probably had decided, to some extent, on the most probable or suitable location for the construction of the canal and were exploring the engineering details by core drilling.

Q--Then I see that you finished your topographical map in March 1915? A--I would not say we finished it then. To a great extent, it was, probably referring to that one

particular map.

Q--Well, the map you were preparing at that time for the purpose of determining the engineering features, for which you required a topographical map ?

A--That would be simply the surveys, the topographical map of the surveys. The borings and excavations of sub-strata were continued almost continuously until we commenced actual operations.

Q--Well, that is not noted on this chronological chart. You made your first report, or is it the first report ? You did make a report, as I understand it, on June 23rd, 1915, with a preliminary estimate ? A--I would say some of the report was made at that time. The final report is September 13th, I believe, 1915.

Q--I have before me copy of your report of June 23rd, 1915, to the Chairman, and it commences:

"In compliance with the instructions of the Commission I have carefully investigated the power conditions on the Niagara Peninsula, and am pleased to submit a preliminary estimate covering the development of 100,000 H.P. at the Queenston site."

Can you tell me the date on which you got those instructions, Mr. Gaby, have you any record in your Department ?

A--I cannot tell you the exact date, it must have been somewhere in the month of May, 1914.

Q--Yes. Well, then, I see in this estimate, in this preliminary report, you say:

"The following are the assumptions which have been used in preparing the estimates, which provide for an ultimate development of 300,000 H.P. at the site, namely:

1. Protection against ice only at Chippawa, the lower channel between Hog Island and shore

"providing water when permanent work is placed for extension."

Q--What did you mean by that, "protection against ice only at Chippawa, the lower channel between Hog Island and shore providing water - " I just want to find out whether it is a method of construction, or what it meant ?

A--What that meant was until the permanent works were put in at Hog Island. You see, that is the section built below Hog Island, there are two openings; Hog Island is in the centre of the river, and at both sides there is an opening. Protection against ice at Chippawa was put in the upper section.

Q--The work you had in view was sufficient to provide for the development that was contemplated ?

A--Just then contemplated, just a temporary proposition, in contemplation at that time.

Q--Well, then, No. 2:

"No dredging in Welland River. Present section assumed sufficient."

A--That meant no expenditure on Welland River.

Q--The section of the Welland River would have been sufficient for this development without that ?

A--That was our view at that time.

Q--Then No. 3:

"Dredge for 100,000 H.P. installation from Montrose to mouth of rock canal, about Station No. 84."

A--That was the dredging of a new canal sufficient to carry 6500 second feet from a point near Montrose on the Welland River, to the section where the rock section started, about a mile or a mile and a half.

Q--No. 4:

"Permanent control works at mouth of rock canal for 300,000 H.P."

A--Yes, that meant, as I remember at the time, the installation

of gates at what we intended as the structure for the carrying of the M.C.R. Railway over the canal locks, and things of that kind.

Q--No. 5:

"Rock Canal for 300,000 H.P. installed."

A--That, I think, is confusing and, as you will note, the canal section was only for 6500 second feet, and it was impossible to secure 300,000 from 6500 second feet.

Q--At this time, your opinion was that you would get the 300,000 H.P. from the 6500 cubic feet per second?

A--No. That statement there, I think, must have been an error, it should have been 200,000. The statement there refers to the rock canal section, which was only designed for the carrying of 6500 second feet, and which is only capable of developing 195,000 to 200,000 H.P. on the Queenston-Chippawa Development. That was our undertaking at that time, to take care of probable additional canal.

Q--Well, you did not contemplate, at that time, did you, an additional canal for 300,000 H.P.? A--We would have if we had extended to our canal. You see, our first canal proposition was 6500 second feet which would generate, approximately, 200,000 H.P.. We were purchasing more right of way than was necessary, so that additional canal could be constructed when required.

Q--Then No. 7:

"No regulating flume excavation."

A--Yes, no regulating flume excavation.

Q--It was not necessary for the development you then had in view? A--Yes.

Q--No. 8:

"No artificial storage."

A--We had the storage in mind for future development, but none for the beginning.

Q--And none would be required for the 100,000 H.P. ?

A--None would be required for the 100,000 H.P.

Q--No. 9:

"Highway and railway bridges built for extension at time flume is added, i.e., for 300,000 H.P."

A--The bridge, of course, would be over everything.

Q--No. 10:

"Forebay excavation for 300,000 H.P."

A--That was correct, yes.

That was providing for 6 units, as far as forebay is concerned, and that would have provided for 300,000 H.P.

Q--Then you had, at this time, in contemplation, a development up to the maximum of 300,000 ?

A--We had. As a matter of fact, the plans provided for extensions not only to 300,000 but up to 800,000, well, I have forgotten the number of units, but a larger number than that. You will note the plan of January 6th, 1917, shows only an installation of four, and a forebay for six, but that a second future forebay has another six, in dotted section on the plans.

Q--Well, we will come to that a little later. No. 11:

"Sufficient excavation made in storage to provide safe location of concrete wall separating storage for canal."

That is just part of the necessary work ?

A--Just a little excavation.

Q--No. 12:

"Retaining wall along International Railway where needed."

That is just one of the necessary pieces of construction?

A--Yes.

No. 13:

"Sub-structure for 300,000 H.P. installed at head house."

A--Yes.

Q--No. 14:

"Superstructure for 300,000 H.P. installed at Headhouse."

A--Yes.

Q--No. 15:

"Cranes for all possible future purposes, that is, 600,000 H.P. at head house?"

A--Yes.

Q--No. 16:

"Service tunnel, hot air, elevator and duct lines for 600,000 H.P."

A--Yes.

Q--No. 17:

"One complete lined shaft and tunnel for 100,000 H.P."

Q--These items, 15 and 16, are items that were common for all, even 100,000 H.P. They would be common, in view of the use of them at times for all parts of the plant.

Q--Yes. Then No. 17:

A--Yes, two turbines would be operated.

Q--No. 18:

"Two shafts and tunnels excavated only for 300,000 H.P."

A--That meant just the excavation in the cliff.

Q--No. 19:

"Ice shaft for 600,000 H.P."

A--That is common to all the plant; once you put an ice shaft in it does for any extension.

Q--No. 20:

"Sub-structure and tail-race for 300,000 H.P."

A--Yes.

Q--No. 21:

"Exciter penstock and shaft for 600,000 H.P."

A--That was common to the plant.

Q--No. 22:

"Superstructure for 100,000 H.P. power house."

A--Yes.

Q-- Nos. 23 and 24:

"Electrical equipment for 100,000 H.P. including cranes for 600,000 H.P.;"

Switching equipment for 12,000 volt apparatus in power house."

A--That means the switching equipment only to the buses.

Q--Then it reads:

"We have estimated that the completion of the above works will cost \$10,500,000 or an estimated cost per H.P. of \$105 for 100,000 H.P. The estimated annual charge on the above expenditure amounts to \$944,600 or \$9.44 per H.P. This capital expenditure includes, in addition to that required for 100,000 H.P. development, the necessary equipment in the power house and head works for an extension to 300,000 H.P.

The approximate cost for 200,000 H.P. will be in the neighborhood of \$70 per H.P. with an annual charge of less than \$.

This development is a feasible one and will give the Commission a large amount of power at minimum cost and maximum efficiency, it being possible to realize ahead of 305 feet at this point, which is practically double the heads available at the present power sites at Niagara.

In addition to the advantage of the high head mentioned, it is possible to secure property for storage purposes, which will enable the Commission

"to draw continuously the uniform amount of water from the Welland River. The surplus waters available under the International Waterways Treaty and the surplus waters of the Welland Canal are sufficient to generate from 250,000 to 275,000 H.P. "

That is, the 6500 cubic feet per second plus to --

A--About 100,000 or 200,000 from the Welland Canal.

Q--Would give you from 250,000 to 275,000 ?

A--And in conjunction with the storage. We would also have to consider the storage in connection with that. In connection with this estimate, I would like to point out --

Q--Well, just let us finish, and then you can come back?

A--We ought to take it up as we go along. In connection with the estimates of 10 millions and a half, I just wanted to point out that, of course, those were made under the conditions then existing, as to interest rates, as to cost of labour for operation, maintenance and so forth.

That was all I wanted to say as to that.

Q--Then you say:

"It is very urgent that the Commission shall provide for additional amounts of power in the near future, having in consideration that the requirements of the Niagara System will use the full amounts of the contract with the Ontario Power Company before the end of the year. Temporary contracts may be made for a small amount of power from other plants generated at the Falls to take care of its present needs, but it will be necessary to obtain even a larger source of power than those at present available in order to satisfy the requirements of the Niagara District in the near future.

The construction of the above plant will meet the requirements for some time to come, and to complete

"the same ready for use it is necessary that work be immediately commenced, as it is estimated that it will take under ordinary conditions approximately three years to complete the plant ready for operation; from this, it will be seen that it is necessary to make an immediate decision in order to provide for the power requirements of the Niagara District in the future.

As regards the expenditures on account of the above considered development, I may say that these would be about \$750,000 to \$1,000,000 for the fiscal year ending October 31st, 1916; approximately \$3,000,000 during the fiscal year 1917; \$5,000,000 during the year 1918 and the remainder in 1919.

Sufficient money has already been appropriated by the Government to carry on the necessary engineering work for the present year."

Now, that represented your view of the situation at that time, Mr. Gaby ? A--Yes.

Q--And your view then was that construction should be started at once, and that you should complete construction in about three years' time ? A--Yes, that was my view at that time.

Q--Then had you, at this time, made the necessary investigations, by core drilling and otherwise, to enable you to arrive at, what you considered, a fair estimate of cost ? A--We had not completed all our core drilling, and our final information in connection with that, but we fully believed that we had sufficient information to warrant us in preparing that report and submitting it to the Commission at that time.

Q--Then you did continue your core drilling after that date?

A--Yes.

Q--Because I see it is noted. I see the chronological chart,

Exhibit 18, mentions that, in September, 1915, core drilling discontinued ? A--Yes.

Q--Then, following this report of yours, the Commission approved of the proposal. Well, the report of yours, apparently came before the Commission on July 30th ?

A--Yes.

Q--I notice the minute is:

"The question of the development at Niagara Falls was taken up and carefully discussed. The report of the Chief Engineer as to the investigations under way was presented, and the Chairman was instructed to communicate with the Government setting out the merits and advantages of the scheme --"

THE CHAIRMAN: Would this be the report which you have just read, Mr. Rowell?

WITNESS: It would be that report with probable additions added to it. It might have been of a nature similar, and I believe it was --

HON. MR. ROWELL: As I understand the Chairman's question it is: Is this the report mentioned in the minute?

WITNESS: It may have been with additions to it, I cannot say.

Q--Was there any other report, or can you tell me of any other than this, this is the only one we have ?

A--As far as estimates were concerned, there was no other report.

Q--But so far as touching the type of construction ?

A--No, there was no other report.

Q--Before the Board at that time ? A--No.

Q--Then I notice on September 8th, the minute says:

"The question of the Niagara Development was set over till the next meeting."

Then the minute of September 13th:

"The report re Niagara Development was presented to the Board and carefully considered. After discussion the Chairman was authorized to sign the same and the Secretary to transmit it to the Hon. Mr. Lucas for presentation to the Government."

Now, that would be the report which is already in, signed by the Chairman and addressed to the Lieut-Governor in Council, dated September 13th, 1915, Exhibit No. 2 ? A--Yes.

Q--The minute says -- "this report was prepared and submitted to the Board." By whom was it prepared ?

A--The greater part of it, I should say, was prepared by myself in collaboration with the Chairman, or other members of the staff.

Q--Yes. A report of this character, dealing with the power conditions, and the estimates of cost, and so on, would be a report compiled by you, or by your staff ?

A--Yes.

Q--And it would be your duty, as Chief Engineer, to present that to the Board ? A--Yes.

Q--Then I see in this you set out the amount of power which may be diverted to the Canadian side under the International Waterways Treaty, the amount which each of the existing companies is entitled to divert, and then the balance that is then considered available for new development ? A--That was our interpretation, at that time, of the Treaty.

Q--When I see, on page 8, you say:

"The Commission's investigations show that it is possible to utilise the above surplus and the available head between Lakes Erie and Ontario to develop 221,000 h.p. without storage, as against 104,000 h.p. produced at Niagara Falls under present operating conditions."

A--Yes.

Q--Then you say:

" It is interesting to apply the same line of reasoning to the volume of diversion which the three companies at Niagara are entitled to utilise. These companies will use 29,390 second feet of water for the production of 405,000 h.p. This same water used under a 300 feet head would produce 900,000 h.p."

I thought that was dealing with your own development, it is just a statement of yours.

Then on page 10, section 5 of the report, you deal with "Possible Schemes of Development". You say:

" Careful surveys have been made of this Queenston-Chippawa scheme of development with detailed explorations of earth and rock strata and other engineering data necessary to enable estimates to be prepared of the cost of the development.

✓ It was found that on the basis of an ultimate 300,000 h.p. capacity for the permanent works, and with 100,000 h.p. equipment installed, the development could be made for \$10,500,000. with an annual charge of approximately \$944,600. per annum, including operation, interest, sinking fund, maintenance and all other operating charges, or an equivalent of \$9.44 per h.p. per annum for 100,000 h.p. Without depreciation and sinking fund, the annual charges for 100,000 h.p. would be \$7.00 and for 75,000 h.p. \$9.20."

That was your then estimate of the cost per horse power which you were submitting to the government, at that time, Mr. Gaby?

A--Yes, for the 100,000 and 200,000.

Q--Then you continue:

" Estimates were also prepared to cover capacities up to 200,000 and 300,000 h.p., which indicate that 200,000 h.p. had been developed at a price not exceeding \$7.00 and 300,000 h.p. at a price not exceeding \$6.00 per annum, including interest, sinking fund and depreciation charges."

Have you those further estimates? You will note it says, "Estimates were also prepared to cover capacities up to 200,000 and 300,000 h.p., which indicate -- "

A--That I have not investigated thoroughly as to whether we have or not, but I have no recollection. I do not know, at the present time, of any detailed estimate of a 300,000 horse power canal at that time.

Q--Of course, you will bear in mind, Mr. Gaby, that this is the formal report of the Board to the Government upon which they are asked to authorize this development? A--Yes.

Q--And it states "Estimates were also prepared to cover capacities up to 200,000 and 300,000 h.p., which indicate that 200,000 h.p. can be developed at a price -- "

A--I would think you will find that, in that report to the Government, we were only asking for the 100,000 horse power, and refer to the permanent works that we had constructed as a part of that 100,000 h.p. development. We were not asking for any more than the 100,000 at that time, as I remember it.

Q--I think that is correct, but you intimate that you are providing for an ultimate development up to 300,000?

A--Yes.

Q--And you gave the figures? A--For 100,000 and 200,000.

Q--And you said what the cost per horse power would be for 100,000? A--Yes, we estimate that.

THE CHAIRMAN: Q--Would the Board have those estimates before it at the time?

A--For the 200,000 and 100,000?

Q--Yes? A--Yes.

Q--For the 300,000? A--I doubt whether they did. It was simply an estimate prepared to see what the 300,000 would do, and from the information we had before us, as I remember it, not having investigated in detail, at all.

HON. MR. ROWELL: Q--Then I see that you say, re Recommendations, Item 7:

" It is very urgent that the Commission provide for additional amounts of power in the near future to meet the demands of the Municipalities in Ontario, taking into consideration that the requirements of the Niagara District will use the full amount of power under contract with the Ontario Power Co. before the year is ended.

Temporary contracts may be made for similar amounts of power from other plants at present generating at the Falls, but it will be necessary to obtain even larger sources of power than those at present available for the specific requirements of the Municipalities in the Niagara district. The construction of a plant as outlined in this report will meet these conditions for some time to come and provide an ample supply of power for the Municipalities in Western Ontario at a minimum of cost."

That was based on your then estimate of the requirements for power by the municipalities?

A--I think you will find, in the earlier part of that report, that I prepared an estimate of what approximately the loads will be in their various years, in detail?

Q--Yes. A--Showing that by 1920 we would be using

200,000 horse power, or something of that nature, or 1919 it may be. It is right at the bottom of the sheets you are looking at, Mr. Rowell.

Q--Yes.

" The estimated increase in the loads of the Commission is as follows:-

1915,	approximately	100,000 h.p.
1916,	"	125,000 h.p.
1917,	"	150,000 h.p.
1919,	"	200,000 h.p."

A--Yes.

Q--"Which is a conservative estimate of the power required by the municipalities in the Niagara district"?

A--Yes.

Q--Do you mean the 200,000 is your estimate of the total requirements of the municipalities in the district, as of that year? A--In the district, as of that year, yes.

Q--Then:

" We estimate that it will require approximately three years to complete the works at the Queenston-Chippawa development, ready for operation. Immediate action is therefore necessary to enable the Commission to take advantage of this excellent proposition and permit of them delivering power at the earliest possible date to take care of the requirements in the Niagara system."

Your view then was that if you got an additional 100,000 horse power from this development you would have ample provision for the requirements of the district in 1919? A--In 1919, yes.

Q--And in the immediate future? A--Well, you will quite readily appreciate that it all depended as to what contracts we got, or could have made for additional power. You will note the figures called for in each year:- 1918 was 175,000;

1917, 150,000, and in 1919, 200,000.

Q--Yes. I see you give some very interesting information, re the growth of load on the Niagara System. You say:

" Power was first taken in the month of September, 1910.

In January 1911, the load had increased to 4200 h.p.

In January 1912, the load had increased to approximately 19,000 h.p.

In January, 1913, the load had increased to approximately 36,000 h.p.

In January, 1914, the load had increased to approximately 48,000 h.p.

In December, 1914, the load had increased to approximately 82,000 h.p.;

And it is estimated that the loads of the municipalities at present served, without any addition to their number, will reach 100,000 h.p. during the coming winter -- "

That would be the winter of 1915? A--Yes.

Q--Then continuing:

" Without considering the loads of municipalities which are under contract or have passed the necessary bylaws, at the present time, for a supply of power.

The estimated increase in the loads of the Commission is as follows:-

1915, approximately 100,000 h.p.

1916, " 125,000 h.p.

1917, " 150,000 h.p.

1919, " 200,000 h.p."

A--Yes.

THE CHAIRMAN: Q--Mr. Gaby, as a matter of fact, has your development, since that time, kept pace with the

demand? A--It exceeded it. In 1917 we could have delivered 175,000 instead of 150,000, as estimated. As a matter of fact, we had to purchase, through the Power Controller, additional power to serve the municipalities with 175,000 horse power. In 1920 or 1919, if we had had the 200,000 available, we could have delivered it to the industries and manufacturers in the western districts.

Q--Could you always have sold more power than you had available? A--In these years, yes, we could have sold more power than was available. The fact of the matter is that in 1920 we were probably 50,000 to 100,000 horse power short of the demands, at least the requests and applications and demands of the municipalities.

Q--Would that apply down to the present time?

A--Not at the present time. Of course, it is not quite comparable. We are delivering to-day, or were in January and December, about 520,000 to 530,000, but you have got to consider in that that we now own, or have in addition to the then consumers and the municipalities in the Niagara district, the customers that were served by the Toronto Power Company and the Ontario Power Company, but the municipalities in the Niagara district that were served by us at that time were taking over 300,000 horse power.

HON. MR. ROWELL: Q--Then I see your report states:

" We estimate that it will require approximately three years to complete the works at the Queenston-Chippawa development, ready for operation. Immediate action is therefore necessary to enable the Commission to take advantage of this excellent proposition and permit of them delivering power at the earliest possible date to take care of the requirements in the Niagara system.

The Commission therefore recommend that authority be given by Order in Council to proceed with the development of this water power as outlined in the Queenston-Chippawa scheme."

Then am I right in understanding that your view, and the view of the Commission at that time was, that you should immediately commence the development of this scheme on this scale? A--Our view had been that for some time, that immediate development was necessary in the Niagara district.

Q--Then you close by stating:

" We estimate that, providing construction is immediately decided upon, the money requirements for 1916 will not exceed \$500,000; in 1917, \$3,000,000; in 1918, \$5,000,000; and the remainder in 1919 and 1920."

That would be the remainder of two millions, making up the total of \$10,500,000? A--Yes.

Q--Now you will recall that the Prime Minister, in his letter of October 6th, 1915, requested further information, requested that this report should be supplemented by further information? A--Yes.

Q--The only part that relates to this development, I think, are questions 3 and 4:

" (3) Revised figures as to the amount of money required for the proposed development in each year until its completion. I understood yesterday that the Engineers had revised the estimate of the amounts required since the report I have was received.

(4) An estimate of the outside demands of the Commission for money during the time required for the construction of the proposed canal over and above the amount required for construction of the canal."

Then the Chairman replied to this letter on October 25th, 1915?

A--21st or 25th.

Q--October 25th, I think. Have you a letter in your file of October 21st? A--No, it is a memo to the Chairman of the 21st.

Q--Well, then, just tell us what your memo was on that request of the Prime Minister's, in so far as it touches estimates. We are not concerned with other matters at the present? A--No, it is signed, apparently, by the Chairman.

Q--Well, I see the Chairman's letter to the Prime Minister, paragraph 3, reads:

" Revised figures as to amount of money required for proposed development each year until its completion:

The engineers of the Commission have confirmed their estimates by actual data secured in the field and consider that the money requirements for 1916 will not exceed \$500,000; for 1917, \$3,000,000; and for 1918, \$5,000,000, the remainder in 1919 and 1920."

So that you, apparently, did not modify those figures as to the annual expenditure? A--That is quite right.

Q--Then that is followed by a request from the Commission to the Prime Minister, dated December 6th, 1915, which states:

" At a recent meeting of the Commission, the matter of an increased power demand in the Niagara district was discussed, and I was authorized by the Commission to communicate with you and urge that owing to the increased demand for power by the municipalities in the Niagara district, and that notwithstanding the fact that they have obtained all the available power, the Commission are still unable to meet the demand, and desire to impress

upon your Government the necessity of immediate action being taken respecting the development of power in the Niagara district."

The Commission were pressing for authority to go ahead with this development at that time?

A--I presume so, yes.

COMMISSIONER HANEY: What date was that, Mr. Rowell?

HON. MR. ROWELL: December 6th, 1915.

Q--So that, at that time, is this a fair statement, you, as Chief Engineer of the Commission, thought you had accumulated all the data necessary to enable you to make a fair estimate of the cost of the development then proposed, and wished the necessary authority to go ahead with the work? A--Yes, I believed that was a fair estimate. We had certain information available before us, which we thought was sufficient to prepare an estimate on the development of 100,000 and 200,000 horse power.

Q--Yes. Well, then, the legislation, I believe, was passed in the spring of 1916 authorizing you to proceed, at least authorizing the Government to authorize the Commission to proceed? A--Yes.

Q--Now I notice, just before the legislation was passed, and while it was, apparently, before the house, requests were being made for authority to purchase lands and to go ahead with the development, but the important request is that of April 24th, 1916, and it relates to the authority to proceed under the then pending legislation, and for the approval of plans submitted to the Government. We will have to turn to the legislation, because it refers to it. First, we will just look at the request, and then you will turn to the legislation. You have a copy of the request before you, Mr. Gaby?

A--What is the date?

Q--April 24th, 1916, from the Secretary of the Commission?

A--No, I haven't it before me.

Q--It is Exhibit No. 4. That is a request to issue the necessary authority to allow the Commission to proceed with the work as provided for in sub-section (a) and (b) of section 3 of an Act respecting the Public Development of Water Powers in the vicinity of Niagara Falls. Do you recall that, Mr. Gaby, that (a) was to enter upon the lands for the construction upon, survey and lay out the lands, and water privileges, and (b) was the acquiring of rights of way? A--Yes.

Q--And that is what you were then requested. Then this request proceeds:

" Also the approval of the plans and report submitted by the Commission and on file with the Government."

Now, would those plans be, as far as you can tell us, the plans you submitted to us yesterday, and which have been marked as exhibits? A--Yes..

Q--They would be exhibits 32 and 33, and possibly 34. Exhibit 34 is the one that touches the right of way?

A--As I stated before, I don't know. I have never been able, up to this date, to identify the plans that were submitted with a report previous to April 24th, 1916, but those plans were in our possession, and correspond with the estimates that were prepared in June 23rd, 1915.

Q--And if those are not the exact plans they would be plans of that character? A--Of similar character. There may have been additional plans showing general layout, but I am not able to say definitely.

Q--It refers to the report submitted by the Commission. That would be the report we have already been referring to, of September 1915? A--Presumably, I don't know of any other at present.

Q--Then the Act recites:

" And whereas the Hydro Electric Power Commission of Ontario, after investigation by its Engineers, has reported to the Government upon a scheme for the development of a supply of power from the Niagara River and its tributaries, and has prepared estimates of the cost thereof;"

Then the scheme and the estimates which you had prepared and submitted to the Government is the scheme and estimates to which we have been referring, embodied in the report of the Chairman, of September, 1915?

A--You will notice that the scheme was one that would finally be the ultimate capacity of probably 600,000 horse power, and the estimate provided for a canal with a capacity of 200,000, or provided for 100,000 h.p. with a canal capacity of 200,000?

Q--Yes. I only want now to identify the report, if that is the report and scheme? A--That is what I am stating, what the report provided for.

Q--Well, that is the report, the report of the Chairman of September, 1915, and the estimate which accompanied it, of the cost? A--Yes, and the details that went along with them showing what was contemplated, as far as the scheme is concerned, that the ultimate development would be 600,000 horse power, but the estimates only provided for 100,000, for permanent works, for 300,000 and 200,000 canal capacity.

Q--We have got along excellently, Mr. Gaby, I am coming to all those details? A--I am sorry, Mr. Rowell, that I don't know you are coming to them, so I am explaining them as we go along.

Q--What we want to do is to identify what is referred to here? A--I am making it plain from my point of view, at any rate.

Q--There is no other report? A--Not that I know of.. Those reports and details we have been discussing this morning covered the estimates and reports that we would have for the Commission in 1915.

Q--Then the work at that time, as covered by that report, was, as you say, a canal providing for a diversion of 6500 cubic feet per second with a suggested ultimate capacity of 300,000 horse power, with the Fore Bay and other works connected with it, as outlined?

A--Suggested ultimate of 600,000, but an estimate, on the permanent works, of 300,000.

Q--Well, then, did you have in view, at that time, a duplicate canal? A--We had, yes. As a matter of fact, the early estimates were for 3 canals, that is, 200,000 horse power capacity each.

Q--Well, where are those estimates? A--Not estimates, I mean our contemplated scheme. The estimates only provided for the 1 canal of 100,000 and 200,000 capacity, with plans showing the possibility of extending that by 2 other canals.

Q--We have not seen any plans showing 3 canals?

A--I don't know that any plans were submitted to the Commission in detail in connection with it, but we have sketches and plans showing such sections, and 3 canals.

Q--Were any such plans submitted to the Commission?

A--That I would not like to say definitely, they may have been.

Q--Well, if there were, we would like to have them; if you can tell us the date on which they were submitted too, Mr. Gaby, we will be glad to have it. Then you will recall this Act of 1916 authorized the Government to authorize the Commission to proceed? A--Yes.

Q--And in reference to the cost, you will recall the provisions of section 4:

" The cost of the construction and maintenance of the works authorized by this Act shall be defrayed out of such money as may, from time to time, be appropriated by the legislature for that purpose, and the works which may be authorized under section 3 shall be carried out and constructed as far as possible in such a manner that an appropriation made in any one fiscal year shall not be exceeded by the cost of the work to be carried out in that year."

Did you have that before you as you made your estimates from time to time?

A--I don't know that we had that section before us, because the estimates were prepared before the legislation was made.

Q--No, no, I mean the subsequent estimates?

A--The subsequent estimates, in 1917 the Act was changed, and we considered that it came under the 1917 Act, the Hydro Electric Power Commission Act, and appropriations were made accordingly.

Q--That was your interpretation? A--I simply submitted the estimates to the Commission and they dealt with the interpretation of the Act in their legal department.

Q--Well, I see section 5 of that Act provides:

" Upon receiving the authority provided for by section 4, the Commission shall open an account to be styled 'The Niagara Power Development Works Account' and such account shall contain an accurate and detailed statement -- "

setting out the requirements. Can you tell me if such an account was opened? A--All accounts of the Commission under particular work orders, and particular jobs, are kept separate, and they were under the Ontario Niagara Development Act, they were under the heading of Queenston-

Chippawa Development, or Niagara Power Development, separate accounts of the expenditures on account of this development?

Q--Yes. I see this section calls for, included in this account:

" (a) Of all sums received by the Commission from the Government, for the purposes of the works hereby authorized; and

(b) An accurate and detailed statement of the cost of the work, including the services of the engineers, surveyors, and other officers of the Commission, and such proportion of the expenses of the administration of the Commission as may be fixed by Order in Council as fairly chargeable to the works undertaken and operated under the provisions of this Act."

Has that ever been done?

A--As I remember it, discussions with the Auditors and the Commission, and officials, took place from time to time in connection with that proposition, and we considered that with the change in the Act of 1917, that was not necessary, it was not necessary to submit it in that detail, as it came directly under the Hydro Electric Power Commission Act, the Commission acting for and on behalf of the municipalities.

Q--Then the Commission took the view that it wasn't necessary? A--Yes, it was not necessary.

Q--You never submitted any statement to the Government as a basis for an adjustment under that section?

A--Not that I know of, I wouldn't like to answer definitely, but I don't know of any.

THE CHAIRMAN: Q--Was any opinion of Counsel ever obtained, Mr. Gaby, as to whether or not the original Act was superseded by the one of 1917? A--I believe so. I don't know whether it is in writing or not, but I know

we had discussions on that very question with the auditors, and I presume we would also communicate with Counsel in connection with it.

HON. MR. ROWELL: Q--Would you just have that looked up and see if opinion of Counsel was submitted on that?

A--Yes, I will ask Mr. Pope to have it looked up.

HON. MR. ROWELL: Mr. Pope, could you tell us if opinion of Counsel was secured on the question of whether the Act of 1917 relieved the Commission from compliance with sections 4 and 5 of the Act of 1916?

MR. POPE: They were so advised by the law department at the buildings, and no person ever questioned that.

HON. MR. ROWELL: Have you a written opinion on it?

MR. POPE: Well, I don't know that I have, myself.

HON. MR. ROWELL: Well, if you have a written opinion, would you mind producing it?

Q--Then, Mr. Gaby, you continued your work during the year, 1916, after this legislation was secured?

A--Just pardon me one minute. I might say that the accounts are kept in absolute detail, very great detail, as a matter of fact, if you want those.

Q--I am not questioning that, my only point is whether you acted under that Act. Now, you continued your work, during the year 1916, under this Act, and obtained Orders in Council authorizing you to enter upon, and survey and lay out, and purchase lands, and so on? A--Yes.

Q--Then, in the fall of 1916, following the meeting of the Commission, of November 11th, I think it was, 1916, the Commission requested an Order in Council authorizing the Commission to proceed under sub-sections (c) and (d). That is the request of November 25th, 1916; that was an authority to go ahead and construct? A--Yes.

Q--Exhibit 6. Now, while that was pending before the Government, you got the letter from the Prime Minister,

Sir William Hearst, to which reference was made yesterday, directed to Mr. Lucas, and sent on by Mr. Lucas the same day to the Commission, that is, the letter of December the 12th, 1916, requesting further information, and to which the Secretary of the Commission replied January 12th, 1917. Did you furnish the data, Mr. Gaby, upon which the answer of the Commission January 12th, 1917, was given?

A--Insofar as it related to any work that I was dealing with.

Q--Well, but you were the Engineer in charge. Is there any part of that letter of Mr. Pope's of December 12th, 1917, with which you did not agree? A--No, but there may be --

Q--Or which you did not furnish? You have got it, just look at it and tell me. I just want to recall to your mind the conditions. The Commission had applied for authority to proceed? A--Yes.

Q--Under the Act. The Prime Minister is calling for further information before the Government authorizes the Commission to proceed, and, without going through the letter, he makes some ten requests for information, and points out the importance, from the Government's standpoint, of having full and accurate information.

Paragraph 8, the letter reads:

"Although I have no doubt the engineers have estimated the cost on a liberal scale to provide for contingencies, nevertheless, if the actual cost should seriously exceed the estimate and the Commission has not taken the precaution to secure tenders, room would be left for severe criticism."

And then paragraph 9:

"Has a report been obtained from an engineer of International reputation, - (1) upon the advisability of the scheme as proposed, and (2) the cost of same? -

"if so, a copy of the report of this Engineer. If such a report has not already been obtained I feel that such should be obtained at once."

And then he concludes:

"I would be glad to have the above information and all further information and data that the Commission can supply in order to enable me to understand as clearly as possible the extent and character of the project we are undertaking, and the reasons for adopting different courses that may be suggested to us by the Commission, and in order that I may be able to properly explain and defend whatever action the Government may take in the matter."

Now, then, that was your considered reply to the Prime Minister's request upon which the Government was to take action, and giving all the data which you had that would fairly have a bearing on the Prime Minister's questions.

A--Yes, as far as I was concerned, Mr. Rowell.

Q--Then although you point out in this letter that the costs of electrical machinery, the recent advances in the cost of Hydro-Electric machinery indicate that it will be necessary to increase these estimates 15 up to a possible extreme 20 per cent, you point out:

"As against this, however, it may be mentioned that both of these estimates include an item of 25 per cent for engineering and contingencies, which it is expected will absorb the greater portion of this advance in the cost of machinery --"

That was your view at that time, Mr. Gaby ? A--Yes, in view of any economy which we were probably sure to effect, but I must point out here, Mr. Rowell, that, in making that statement we are placing the two propositions

on a different basis, that is, in the original estimate we provided for contingencies to the extent of 25 per cent, in view of the increase and probable recommendations, in the future, we anticipate that it might be possible to carry on the work, under the original estimates, although costs had increased from 15 to 20 per cent, that is, eliminating any item for contingencies in the second estimate, in view of these increased costs -

Q--I notice in answer to 7 you state:

"The estimated cost of power for 100,000 H.P. is 9.45 per annum per horse-power, and the estimated cost for 200,000 H.P. is 7.50 per annum per horse-power. The increase in the cost of Hydro-Electric machinery and equipment, mentioned herein, will, to some extent, increase the above stated estimated prices of power per horse-power, but we believe that, due to economies in construction, if the work is undertaken by the Commission, we shall be able to confirm the prices mentioned."

In other words, you were representing to the Government, at that time, that, in your view, if the Commission were authorized to undertake the work you could effect such economies in construction as would enable you to overcome any increase in prices at that time ?

A--With the conditions at that time, and whatever anticipations were for the future, in connection with this work, we believed that we could, by economies, and from our studies, further studies over 1915, reduce the unit cost of carrying on the work.

Q--Yes. A--That, of course, is predicated as of that time.

Q--Then you go on to say:

"These prices include all charges for interest on Capital expenditure, sinking fund, depreciation,

"maintenance, renewals, insurance and operation.

All of the estimates of the Commission have been fully confirmed by the 'cost-plus' tenders received from contractors and their estimates of the cost of the work."

I will come to that later. You had obtained certain estimates ? A--What he is suggesting there is the obtaining of reports from independent Engineers. I might point out, too, that we must also consider the items. interest charges, maintenance, and operation.

Q--This was entirely as of that date, we quite recognize that, Mr. Gaby, I just want to get your view as of that time. When you state, in answer to the Prime Minister's request, that an independent expert should be secured to report on it:

"The Development scheme is being reported on by Mr. R.D.Johnson, of New York, who was retained by the Commission in the spring of 1916."

I notice Mr. Johnson, in his statement, says he was retained in October 1915 ? A--Well, it may have been that we had discussed the matter with him earlier. After that I cannot say definitely.

Q--Yes, he states he was retained in October. Then the Prime Minister asked, particularly, as to who was to have charge of the work ? A--Yes.

Q--And in Answer 1C you say:

"The work will be carried on under the direction of the Chief Engineer of the Commission."

That is, you were to be responsible ? A--Yes.

Q--And on the question of cost you close by referring back to the reports of 1915, the report of September 15th, 1915, which is already in, and the letter of October 5th, 1915 ?

A--Yes.

Q--And still stand by those estimates of the amount required each year ? A--With the qualification that prices had increased, and we expected, by economies, to reduce them and, as a matter of fact, probably we had prepared estimates in the meantime.

Q--Well, have you any estimates in the meantime varying the estimates you submitted to the Government?

A--I will look that up and see.

Q--If you have, why, we will be glad to have them.

Then, about this time, you got in touch with the Municipalities, in the fall of 1916, with reference to submitting a by-law to the electors of the 1st of January that year ? A--Yes.

Q--Which we had before us yesterday. Mr. Pope told us yesterday the form of by-law; he said he thought it was the same in the different by-laws.

EXHIBIT NO. 29 : Filed by : Form of by-law submitted : Hon. Mr. Rowell, : to the electors. : 23rd March, 1923. :

Q--Now, will you kindly tell me what information the Commission gave to the municipal authorities, or the electors, in these municipalities at this time, upon which they were asked to vote, that is, as to the character of the scheme, and as to the estimated cost?

A--I think the matter was originated entirely by what is known as the Ontario Municipal Electrical Association, and they had correspondence with the Government in reference to the manner in which the legislation was put on the books of the Legislature. They objected to the manner in which the Government had resumed the control of that development, and I believe letters were written to the Secretary of that association pointing out the reasons why, and the difficulties encountered, in making it immediately a municipal undertaking,

and by discussions and conferences with the Government and with the Commission, a recommendation was made, apparently, to the municipalities, or to the Ontario Municipal Electrical Association, that they submit a by-law that would correct the difficulties encountered in permitting the municipalities to undertake, on their behalf, through the Commission, such a Development.

Q--I think you will find a letter of June 7th, 1916, to Mr. Hannigan, from the Premier, in connection with that matter, and I don't remember, just at this date, what action the Hydro-Electric Power Commission took, except that by-laws were submitted by the respective municipalities on a standard form, I presume, after consultation, that they got legal advice as to the proper form to submit to the municipalities to conform with their wishes to have the legislation changed so that they would become the owners of the Development.

Q--Yes, I see this letter, it is the letter of June 7th, 1916, to which you refer ? A--Yes, to Mr. Hannigan.

Q--Now, this relates to the by-law of 1916, so I understand ?

Q--A--Yes, /And, in the course of it the Prime Minister states: (Mr. Rowell quotes from letter of Prime Minister).

I am not asking now whether you agree with the Prime Minister or not, I am just reading the extract from his letter ?

A--Well, I think By-law 95, Mr. Rowell, referred not to the Queenston-Chippawa Development at all but referred to some amendments. I think if you will read a little further down it refers to Audit.

Q--I notice, reading further "Of course as you are aware-- as to the attitude of the Government on the question".

A--The next, I think, refers to other matters.

Q--That is all that deals with this ? A--Yes.

Q--That doesn't bring us up to the point I want to get at, although it is an interesting comment on the situation.

What I want to get at is, what took place at the time the question was submitted to the electors on the 1st of January, 1917? A--In what way, Mr. Rowell?

Q--Well, what information was sent out by the Commission? Mr. Pope told us yesterday you had, what is the Committee, what branch is it that had charge of informing the municipalities on those matters?

A--That is the Department of Municipal Engineers, Mr. Jeffery is the head of it.

Q--Well have you made an examination to see; Mr. Pope thought perhaps you would know. If not, we may have to ask some others, but it would be under your charge?

A--Yes.

Q--What information was furnished to the municipalities to enable them to decide whether they wanted to take financial responsibility for this undertaking, or whether they would prefer to leave it with the Government?

A--The only thing that I can remember, at the present time, is that we would furnish them with information as to the reports that we had already presented to the Government, and our views on the situation, the conditions of the market, and the requests of the municipalities for further power. As to the details, I would have to look that up and find out what was submitted to them.

Q--I would rather we would see them before we ask you to express an opinion, without having the document before you. What documents are in existence with reference to that matter?

COMMISSIONER HARRIS: Q--At that time, was Mr. Hannigan in the employ of Hydro? A--No, I don't know that he has ever been in the employ of Hydro, yes, he was in the employ of Hydro. The only time was during the fall of 1922, up to January, the first few days in January, 1923.

THE CHAIRMAN: Q--Mr. Gaby, at that time was the Association which employed Mr. Hannigan receiving an annual grant from Hydro? A--I cannot say definitely whether they were or not at that time.

Q--I think it was about that time Mr. Clarkson referred to the matter in his report? A--I think it was later than that. I think it was 1917 or 1918 the first time they received anything.

Q--You could refer to it and see? A--My recollection is 1917 or 1918.

Q--If anything was paid it would be in your accounts?

A--Yes, it would be referred to in Mr. Clarkson's report.

Q--I see that a Memorial was presented to the Government on this matter by the Hydro Electrical Railway Association. What would they have to do with this Chippawa Development?

A--They were representatives of all the municipalities interested in the Power situation in the Niagara District, and also other municipalities.

Q--Dated 23rd March, 1917, which refers to the Bill 168 of last session, the Ontario-Niagara Development Act?

A--I think you will find, Mr. Rowell, that that was the Memorial of the Ontario Municipal Electrical Association of March 23rd, 1917, which also refers to the Bill. There are the two Associations, and both of them passed Resolutions.

Q--Well, I am only looking at the Memorial of the Hydro-Electric Association of Ontario, J. W. Lyda, President, and T. J. Hannigan, Secretary.

A--That was one Association, they passed it also on the same date. The Ontario Municipal Electrical Association passed it on March 23rd, 1917, a Resolution of a similar character, signed by Mr. T.L.Church, President, and T. J. Hannigan, Secretary.

Q--Well, this appears to be pressing for a member on the Commission on behalf of the municipalities very strongly, and also asking that the Ontario-Niagara Development Act be amended to provide for the carrying on of this work by the Hydro-Electric Power Commission for and on behalf of the municipalities, the cost of same to be provided for by bonds issued by the Hydro-Electric Power Commission, and guaranteed by the Provincial Government, which bonds would be a first charge upon all the plant and assets in connection with this Development, and which would be further guaranteed by the municipalities through their contracts with the Commission. That legislation be introduced to provide for the election, by the municipalities, of one Member to the Board of the Hydro-Electric Power Commission, voting power being pro rata according to the capital liability of each municipality. That the Commission be appointed permanently, subject to the usual conditions in such cases, or at least that they be appointed for a fixed term of years, thus providing for continuity of administration. That the Act providing for the appointment of a Comptroller be repealed.

That was the objection to the Act of the previous session, appointing a financial Comptroller, Mr. Gaby?

A--Yes.

HON. MR. ROWELL: That might be marked, because it touches on this change of legislation.

A--There is another one of the Ontario Municipal Electrical Association of the same date.

Q--We will put them both together, they appear to be the same resolution? A--I think it is slightly different, it doesn't go quite so far. It divides it into Items 1 and 2.

One for the Niagara Development on behalf of the Municipalities, and the other for representation on the Commission.

Q--But what I would like you to look up, Mr. Gaby, is, what information was given to these municipalities. Some information must have been given to these municipalities upon which they were to vote, as to whether they would assume a very heavy financial obligation or not, and I just want to get whatever documents were prepared, and what information was sent out? A--I have some more copies, dating from November, 1915, which I think you asked for the other day. I might as well put them all in now and be finished with them. These deal with the matter as early as 1914, asking for the Niagara Development Act.

Q--Just give us the dates so that they can be identified.

(Mr. Gaby gives dates requested)

HON. MR. ROWELL: They can all go in as one Exhibit.

EXHIBIT NO. 39 : Filed by : Memorials of Ontario
: Hon. Mr. Rowell, : Municipal Electric
: 23rd March, 1923. : Association and Hydro-
: Electric Ry. Ass'n., etc.

WITNESS: The list of members and representatives of municipalities are shown on the first page of the Hydro-Electric Railway Association Annual Meeting held in Toronto, February 16th, 1916. They passed resolutions in reference to the development. Another one is the Ontario Electric Radial Union, March 31st, 1914:

"That permission be given to the Hydro-Electric Power Commission to proceed at once with the development of the power at the spillway of the new Welland Canal, and that funds be placed at the disposal of the Commission to carry out this project."

Q--Just while we are on that, what proposal was this No. 1 to develop power at the spillway of the new Welland Canal?

A--It starts out with:

"That the amount of power allowed to Canada under the Waterways Treaty is that developed by 36,000 second feet of water, of which approximately 29,400 second feet has been apportioned amongst existing companies. Of the whole amount allowed among the Provinces, 50 per cent will be exported. The United States is allowed 20,000 second feet of water, which, together with the 18,000 second feet exported from Canada gives them 38,000 second feet as against Canada's 18,000 second feet. The balance available, 6,600 second feet, if taken at Niagara, would develop 100,000 H.P., but by a more advantageous selection of location, the same water would develop approximately 225,000 H.P.; the said location being the spillway of the new Welland Canal."

That was their idea in 1914 which they presented to the Government. It does not refer to any particular development.

Q--Where would they get the idea of the spillway, the development being at the spillway? A--I don't know, I cannot tell you.

Q--They would have no ideas of that, except such as would be furnished by the Commission?

A--No, I would not say that, because we had no idea of ever developing at the spillway of the Welland Canal.

Q--It shows, then, that these resolutions are not always the ones to be acted on, Mr. Gaby?

A--As far as that is concerned, Mr. Rowell, we take into consideration any Memorials that they place before us. There was also one of the Ontario Municipal Electric Association of December 9th, 1915, which refers to development,

I haven't noticed exactly where, but it is in there some place.

--These can all go in together for reference in the future, if anybody wishes to follow up that particular branch. Now, I wanted to ask you just one or two questions about Mr. Johnson's report. I find Mr. Johnson's report of February, 1917, does not deal with the two specific questions upon which the Prime Minister asked independent expert opinion in his letter of December 12th, 1916. You will recall that in his letter of December 12th, 1916, question 9, he asks:

"Has a report been obtained from an Engineer of international reputation, (1) upon the advisability of the scheme as proposed and (2) the cost of same."

I notice in Mr. Johnson's report he states:

"I have confined my attention for the most part to the methods of attack of the problem, without criticising the larger questions of judgment which have decided the choice of a canal instead of a tunnel, and without too closely scrutinizing the estimates of cost."

Then having received that report you asked him to make a further report, in which you asked him to cover those points, including the possible development up to 900,000 H.P.

--Of course, numerous conferences had been held, and discussions, with him, and we had no idea, up to the receipt of that report that he had any other view than that the canal was the best proposition as far as the Commission were concerned. Our own studies of the comparative merits of the canal and tunnel were sufficient to warrant us to go on with the canal scheme, and immediately upon receipt of the suggestion in that letter, although he had not investigated the matter, he was immediately requested to report on both schemes and give his views in connection

with them. As a matter of fact, he was asked to take up all matters in connection with this not only from the canal standpoint, but from any other manner of development.

Q--Well, then, he made his second report, which Mr. Acres referred to yesterday, in which he expressed a preference for the tunnel at that time ? A--Well, I would not state that. I think that was qualified by the magnitude and size of the canal or tunnel. If it was a 6500 second feet canal or tunnel, as stated therein, he would probably favour the tunnel proposition, but on the larger sizes, why, I think it was doubtful whether he then favoured it in his report.

Q--Well, his report speaks for itself ? A--Exactly.

Q--I notice, in chapter 8, he says:

"Having in mind the ultimate utilization of 30,000 second feet of water, it appears clear that the first canal to be undertaken should have a capacity of, say, 10,000 second feet instead of 6550, as hitherto contemplated. The difference in immediate cost is only about \$2,500,000, according to the estimates, leaving another \$1,000,000 to be spent in further excavation when the capacity is finally brought up to the 10,000 second feet requirement."

Do you agree with his estimate of what the additional capacity would be by raising the capacity from 6550 cubic feet to 10,000 cubic feet ? A--I don't know that the matter was considered in that way. A better method of comparison would be to take the detailed estimates of the Commission and Mr. Johnson with reference to the same and, another thing you must take into consideration is, that in the interim period between the time of preparing this estimate and the original No. 1 estimate there had been considerable change in the costs of material and labour.

Q--Yes, I notice he says here:

"In case the canal type of construction is adopted, it is recommended to complete the rock excavation for a capacity of 10,000 second feet in the first canal."

Mr. Johnson was quite clearly of the opinion that your first canal, if you adopted the canal style, should be one of 10,000 cubic feet per second capacity ?

A--That matter was discussed previous to the preparing of that report, and the question of increasing it was discussed at conferences with Mr. Johnson, in view of the fact that the Commission had recently completed arrangements or contemplated completing arrangements for the taking over of the Ontario Power Company plant, which would make available additional water for the use of the Commission --

Q--When did the Commission take over the Ontario Power Company plant ? A--The agreement of sale was completed on April 12th, 1917, and the actual taking over of the property was to take place as of the date of August 1st, 1917.

Q--That was a purchase by the Government of Ontario ?

A--No, that was a purchase by the Hydro-Electric Power Commission by the issuing of its bonds for and on behalf of the municipalities, under the Hydro-Electric Power Commission Act.

Q--Then that gave you how much additional power ?

A--Well, with that, and with the surplus water from the Welland River we estimated, and the matter was reported to the Commission, at approximately 10,000 second foot with our then interpretation of the Treaty.

Q--Now, have you the report you made to the Commission on that ? A--I haven't the report at that time. It was reported upon by Counsel, I believe, or the Assistant-Counsel, and we have the document which he prepared at that time.

Q--Report on what ? A--On additional waters from the

Ontario Power Company, and the Interpretation of the Treaty.
It is a Memorandum.

Q--The additional power that you might develop by utilizing half of the water which the Ontario Power Company had been using is an engineering proposition not a legal one ? A--Quite true, but then the question came up and was referred to this gentleman to report upon at that time.

THE CHAIRMAN: Q--Who was it, Mr. Gaby ?

A--Mr. Robinson.

HON. MR. ROWELL: Q--You have that report ?
A--We have that Memorandum, yes.

Q--Now, I notice in Mr. Johnson's report, he thinks that your estimate of cost is too low, in view of the then existing conditions. He says, in Paragraph 1:

"The estimates herewith submitted are based upon prices obtaining at the present time, which accounts, in part, for the wide discrepancy between them and your own estimate of 6550 second feet canal. They are drawn on a very much more liberal scale than that with which you have furnished me, but the same sort of judgment has been applied to the study of both schemes of development, and should, therefore, be correctly comparative."

Now, it was on that report that Mr. Acres made his comments that we had before us yesterday, dealing with Mr. Johnson's suggestion ? A--Yes.

Q--In which Mr. Acres refused Mr. Johnson's criticism, pointing out that you have facilities for doing the work, by reason of the plans that you are making, and the appliances you intend to purchase, which will enable you to do the work at the original estimate ? A--I don't think he goes that far.

Q--Well, then, we will read it. I thought I would

save time by summarizing it:

"In making this statement Mr. Johnson has apparently not taken into account a very vital factor affecting the comparison. The construction methods and costs upon which the original 200,000 H.P. estimate is based, involves nothing wholly new or untried, and furthermore, they are based upon about three years' careful consideration of methods and costs of work on similar character, as, for instance, the work on the Welland Canal, the Erie Canal, the Chicago Drainage Canal, the Levee Work on the Lower Mississippi, and numerous other smaller projects."

Had you worked with Mr. Acres over this question of the estimates during this 3-year period?

A--Had I worked with him?

Q--Yes. A--Oh, yes.

Q--And the view he there expresses, does that fairly represent your view? A--No, it does not.

Q--I see, you differ from him? A--Yes, in that respect.

Q--Then he goes on:

"As a result of this investigation, a plant has been assembled for handling earth and rock excavation which is the last word in modern methods and cannot be duplicated on any other construction job at the present day. With this plant and with the help of electric power, it is certain that a new mark can be set for earth and rock excavation cost. At the same time, the unit costs adopted in compiling the original 200,000 H.P. estimate were in no case lower and in some cases higher than the actual costs which have obtained on the Welland Canal and on the Chicago Drainage Canal. On top of this, there has been added a big contingency percentage.

"It is therefore practically certain that the unit prices in the original estimates can be met even under the working conditions which prevail at the present time.

In other words, the economy which will result from the use of the heaviest type of modern excavating plant, and the use of electric power, will offset the tendency of the present war conditions to increase the cost of the work beyond what it would have cost if done with the ordinary type of small steam driven plant in normal times."

Now, do you agree with that ? A--I would agree that efficiency as far as the proposed layout was concerned would probably result in the unit prices that he stated, under the conditions he was contemplating.

Q--Well, this is the crucial part of it I assume ?

A--We were anticipating that conditions would improve.

Q--I am only dealing with this at this time. Did you agree with Mr. Acres' report on this matter at this time ?

A--In general, yes.

Q--And then you would say his view that the unit prices in the original estimates can be met even under the working conditions which prevail at the present time ?

A--In general, I would say Yes. One thing that you must take into consideration is that we prepared, at that time, two estimates, one based on the higher efficiency, based on our proposed method of operations, and another based on the information that we obtained from the contractors, and experienced consulting engineers, with regard to work of that character.

Q--Then this further:

"In those estimates, the unit costs were fixed as a result of an exhaustive investigation of modern

"construction methods and costs, extending over a period of three years, and in view of the margin of contingencies allowed, these costs will hold even under present working conditions."

A--That is referring to the unit costs which are determined after investigation, yes; that was our general view at that time.

Q--So then we get your view: You agree with Mr. Acres that on the conditions as they stood, at the time this report was made, which was after April, 1917, whatever the date is, because Mr. Johnson's report is April 1918 --

A--The estimates were attached to that report at that time.

Q--This is dealing with your unit cost on the basis of 6500 cubic feet per second ? A--I doubt it, you look at that report.

Q--Just look at the report, Mr. Gaby, don't let us have any misunderstanding, it is quite clear ? A--Those estimates that are attached to the report --

Q--Please look at Mr. Johnson's report, and Mr. Acres' notes. I think it is quite clear that you are wrong. Mr. Acres himself yesterday said they referred to the 6500 cubic feet estimate. You will find it in the first paragraph of Mr. Johnson's report of April 1918, and then you will find Mr. Acres' comments, comments on the first paragraph, and then the later comment on the paragraph I have just referred to. It is quite clear, is it not, Mr. Gaby, referring to Mr. Acres' notes on paragraph 1 ? A--Yes. He says this:

"On top of this again there has been added a big contingency percentage. It is therefore practically certain that the unit prices in the original estimates can be met even under the working conditions which prevail at the present time."

Now, he had in mind the utilization of that contingency item

in order to obtain that. Now that, in all cases, is not the best judgment to use.

Q--All I want for the present is to clear up the point that we were on. It is quite clear that this comment refers to the estimate on this 6500 cubic feet.

A--It refers to Part I of Mr. Johnson's report, but what I say, as a matter of judgment, as to whether it was wise, or is wise, to bolster up your contingency estimate in making comparison of unit prices of the two dates --

Q--That may be, but I understood you to say that your judgment at that time was in accord with Mr. Acres' on this matter ? A--On the reductions due to improved methods, yes, and the obtaining of costs approximately the same as those included in the estimates if you, as Mr. Acres said also include the contingency item as a part of these unit costs. But, as I say, I do not know as it is wise, in our judgment, to eliminate such an item in considering the total cost of the work.

Q--Well, I should think experience has shown that you were both wrong in that view ? A--No, I cannot say that, Mr. Rowell, it isn't a question of experience, it is a question of contingencies over which we had no control. From early in 1917 until 1920 there was an increase of 134 per cent in labour alone.

Q--I am going to give you a chance later --

A--I am answering your question. You made a suggestion, Mr. Rowell, and I, of course, have to give some explanation, otherwise, it will go on the record in that way.

Q--Yes. Well, when did you decide to recommend to the Commission a change in the development from 6500 cubic feet per second to the 10,000 cubic feet per second ?

A--As I stated before, Mr. Rowell, on receipt of that report of Mr. Johnson's, and in view of that fact that the Hydro-

Electric Power Commission had purchased the Ontario Power Company and had available additional water under those conditions, for additional 10,000 second feet, conferences might have been held with the Commission in connection with the matter, as may be evidenced by memorandums which were available at that time. Conferences were held presumably on the instruction of the Commission, with the Engineers, May 28th, 1917, and an instruction was given to Mr. Acres on June 1st, 1917. (Mr. Gaby reads instructions in question)

Q--Then, when did you get Mr. Acres' report in answer to that ? A--I would say that that report was received some time in November or December, 1917.

Q--Where is that report giving the comparative cost ?

A--Comparative costs ?

Q--Yes? A--It is the general report which is before you.

Q--I see ? A--Estimates are attached in that general report.

Q--Showing the 6500 cubic feet as compared with the 10,000 cubic feet ? A--I doubt whether an individual estimate was made on the 6500 cubic feet. Estimates were made on the 10,000 second feet, I am not sure, I think 15,000 or more, but 10,000 at any rate.

Q--Well, what I am interested to find out is, you say your instruction there was that an estimate should be prepared on each so that the Commission may be in a position to judge as to which development they would proceed with. Now, what I want to know is this: Did you still adhere to the estimates of \$10,500,000 and \$13,149,000 in respect of the diversion of 6500 cubic feet per second at the time this was submitted to the Commission in December or January 1918, and, therefore, you did not consider it necessary to prepare a new estimate on that branch of the case, so far as I have been able to find,

and you have been through that report which was submitted to the Commission in April, came before the Commission in April, 1919; the only estimate submitted of the 6500 cubic feet per second diversion was the original estimate accompanied by Mr. Acres' comments on Mr. Johnson's report ?

A--I don't know for certain whether that estimate was submitted or not, I just wanted to make sure.

Q--Well, Mr. Johnson's report is submitted with Mr. Acres' comments on it ? A--Yes. I doubt whether the estimates that are submitted there were for 10,000 second feet.

Q--Well, then, what you did was to submit to the Board a new estimate for the 10,000 second feet, and you submitted to the Board Mr. Johnson's report, which included a criticism of your estimates on the 6500 cubic feet per second, and a justification of those estimates by Mr. Acres in his memorandum ? A--Assuming that we would utilize all that contingency in arriving at those rates, yes, and being qualified by the statement that we had submitted to the Commission in connection with the rise in the cost of material from 15 to 20 per cent.

Q--Well, now, when you got Mr. Acres' report-- tell me the date upon which you decided, as the Chief Engineer in charge to recommend to the Commission the adoption of the 10,000 cubic feet per second development ?

A--I am unable to find anything definite. It must have been in between the period November or December, 1917, and May of 1918.

Q--Well, Mr. Acres told us that it must have been prior to a date in March ? A--Yes.

Q--Because he says by that time he had started the actual work on the larger scheme. A--Yes.

Q--Well, then your instructions to Mr. Acres must have been prior to March ? A--Yes.

Q--Now, have you any data at all of instructions ?

A--Not that I can find definitely, no.

Q--Can you find any record of the Commission authorizing you to proceed on that scheme ? A--Instructions definitely to myself in writing ?

Q--Instructions to anybody? A--No, I don't know that I have up to this time.

Q--Can you find any record prior to March, 1918, of the Commission approving of this enlarged scheme ?

A--I don't know of any record, but there must have been, because the Commission's letter to the Government in February of 1918, as to the cost of this Development, referred to the estimates on the 300,000 H.P. canal, from 17 millions to 24 millions.

Q--Well, we will come to that later. You say there must have been something. Mr. Pope told us that he had not found any record of the Commission authorizing him to write that latter ? A--No.

Q--Then is this correct, that you cannot find any record of any decision of the Commission approving of this enlarged scheme prior to the date when you actually commenced work upon it, in March 1918?

A--I would not say that we commenced work actually; I would not like to say that, as a definite date, we commenced actual work. He said that any work, up to that date, could have been carried on under any scheme from 6500 to 15,000 second feet, or 10,000 second feet, that was under consideration.

Q--Yes, but he said that on that date they were irrevocably committed to the larger scheme ?

A--I don't know that it was definite at that date, but all I can say is that I can find no record at all of the Commission's giving definite instructions in connection

with it. There may have been verbal instructions, and in every likelihood there were. The matter was discussed on a number of occasions, and those reports were, from time to time, presented for the information of the Commission.

Q--Can you find any record prior to April, 1918, of the submission of any report by you to the Commission recommending this larger development ? A--No, I cannot, I haven't found them so far.

Q--Where you find record of the purchase of a thousand dollars or two thousand or ten thousand dollars worth of material, one would think it almost inconceivable that a matter of this magnitude should have been decided by the Commission and no record of it kept prior to that date ?

A--Sometimes matters are not put on the agenda that come before the Commission and are discussed in detail, and instructions are given. That probably isn't very often, but there are cases of that kind.

Q--Well, that is the fact, whatever the explanation may be.

Then have you any record of instructions that you gave to Mr. Acres to commence work on this scheme?

A--As a 10,000 H.P. proposition ?

Q--Yes. A--I have not yet completed checking these files, there may be, but I haven't found any at the present moment except these records to prepare the reports on the 10,000.

Q--Yes, except that record in April ? A--June 1st, 1917.

EXHIBIT NO. 40 : Filed by : Instructions to Mr. Acres,
: Hon. Mr. Rowell, : June 1st, 1917.
: 23rd March, 1923. :

Q--Mr. Acres states that he must have had instructions from you as Chief Engineer or he would not have started on that plan ? A--Yes.

Q--You would agree with that ? A--Yes.

Q--Then who would you get the instructions from if there were no instructions by the Board, that is, if there is no minute of the Board, who would give you the instructions?

A--I would get them from the Board verbally if there is no minute.

Q--Who did you take instructions from in the Commission?

A--In the Commission it is usually from the whole Commission, or the Chairman of the Commission.

Q--Do you take instructions from the Secretary? A--No.

Q--I mean who is over you? A--The Commission directly,

Q--And you take your instructions directly from the Commission? A--Yes.

Q--And who is the Executive Officer of the Commission who gives you the instructions? A--Do you mean written instructions?

Q--No, any instructions? A--It would be the Chairman of the Commission.

Q--Then are his instructions usually written or verbal?

A--No, there are very ^{few} written instructions to the staff, they are usually given in the form of a report which is approved of by the Commission and so noted in the minutes. That is the usual form of instructions.

Q--But we have not got that in this case at all. I am trying to get from you how the instructions came to you to start on this development of 10,000 cubic feet per second?

A--Probably by approval of reports that were submitted to the Commission.

Q--Well, then, can you produce any report?

A--General report,

Q--Oh, but this April 1918? A--I cannot say definitely.

Q--Can you produce any report in writing made by you to the Commission prior to April 1918, or considered by the Commission prior to that date? A--I would say that

the report which Mr. Acres made in December had probably been dealt with by the Commission in the interim period. That report was held up until such time as we had all documents, including the electrical as well as the hydraulic, before final submission to the Commission.

Q--Before final submission ? A--Yes, as the general report on the whole scheme. The electrical estimates were submitted in December of 1917. As to whether the Commission had them in that interim period or not I cannot say. These reports were very often placed before the Commission for consideration.

Q--Yes, on what date then, can you tell me ?

A--I cannot tell you the date other than that of April.

THE CHAIRMAN: We will adjourn until 2.30.

Proceedings stand adjourned at 1 p.m. Friday,
23rd March, 1923, until 2.30 p.m.

(Page 4240 follows)

AFTERNOON SESSION.

Toronto, March 23rd, 1923.

HON. MR. ROWELL, Resumed examination of MR. GABY :

Q--Mr. Gaby, we were speaking of the change in plan made in the latter part of 1917, or the first part of 1918, from the small to the larger power development : Can you tell me on the basis of your estimates at that time, what the difference was in the estimated cost ? Your 200,000 H.P. development, as I recall it, was \$13,149,000 ?

A--Yes, \$13,149,000. First, you now ask for the difference between the estimate for 10,000 second feet, costing \$24,000,000 some odd dollars, and the estimate of June 23rd, 1915 for \$10,400,000, for 100,000 H.P., and \$13,000,000 some odd dollars, for 200,000 H.P. In the first place, the permanent intake --

Q--I was just going to say, what occurred to me was that a nearer comparison would be a comparison between the \$13,149,000 estimate, on the basis of the 200,000 H.P. immediate development and the \$21,000,000 on the basis of 200,000 H.P. ? A--Yes.

Q--On the larger canal ? A--I understand you require in a general way, because I have not the details before me, the approximate difference in cost -- it is roughly \$8,000,000.

Q--Just before we go into details, Mr. Gaby, we have, on page K-17, Part 1, of Mr. Francois' report -- I think, for the purpose of the immediate question, perhaps it would expedite matters if you would use your own papers if you prefer, or this report. We have the estimate of 200,000 H.P. immediate installation, on the basis of the canal of 6500 cubic feet per second, amounting to \$13,149,803, and then the canal of 10,000 cubic feet per second, on the basis of

200,000 H.P. immediate installation, \$21,025,559; or the difference between the two, in round figures, is \$8,000,000?

A--Referring to the estimate of 1915 we have an intake which is a temporary intake of timber construction.

Q--The broad difference, first, is approximately \$8,000,000? A--Yes, the broad difference is made up in the difference in size and the difference in the character of the permanent works as between the two propositions. In the first place, \$13,149,000 refers to the total capacity of the canal as 200,000 H.P. In the 200,000 H.P. estimate of November 27th, 1917, it refers to a canal of the capacity of 300,000 H.P., installed equipment of 200,000 H.P.

There is a wide variance between the two as to the final capacity of the canal.

Q--Quite so. My first point was just so that the record will read intelligently: the difference is approximately \$8,000,000 and it is made up of what you are now going to tell me is the difference? A--Yes. I want to explain here, Mr. Rowell, in submitting these reports to the Commission in connection with the general report submitted, it may be that the Commission had knowledge of it prior to the date of the final decision, but it may not appear in the Official Record that there were two estimates submitted in order to make a comparison as between the maximum efficiency expected by the expenditure of \$24,000,000, for 300,000 H.P., and another one for conditions under which contracts had been operating in the past and on which we had information from general contractors, involving a cost of about \$29,000,000. The one I am going to submit to you now relates to 200,000 H.P., as the estimate they took into consideration as being the expectation of the maximum efficiency of the electrically driven equipment.

Q--So we will have no misunderstanding upon reading the

documents; I reach this conclusion: the one about which you are now speaking is your own estimates based upon your own judgment as to conditions then, as to what you consider might be expected in the future?

A--They are our own estimates based on the expectation of the probable efficiency of the electrical equipment. We also had an estimate of our own which was prepared at the same time, on the general conditions obtaining as far as ordinary contract work is concerned. There was approximately a difference of \$5,000,000.

There is one thing I would like to clear up before going on, I would like it understood that in submitting these reports, my instructions came from the whole Commission in the form of Minutes that were transmitted to me by the Secretary, or by verbal instructions from the Commission at the time of the meeting, as the case may be.

Q--I was asking you whether you have any Minutes to guide you, because you required instructions?

A--In addition to that, you asked me from whom I got instructions directly in connection with this matter. My reports are made to the Commission, by letters and reports, submitted to them direct; they may not be on the agenda, but are submitted to the Commission and discussed. My instructions are received either verbally at the time, or in the form of a Minute -- generally in the form of a Minute, which is transmitted to me by the Secretary at a later date, after approval by the Commission.

Referring to the revised estimate of November 27th 1917, you will note that the intake is permanent construction, amounting to the sum of \$975,700; whereas in the estimate of June 23rd, 1915, and the estimate of January 5th 1916, the form of the intake was simply a timber tender out in the river, and the estimate was only

\$9,999. There is a considerable difference in the type of structure, as between the two estimates. In the Welland River estimate, there is not a very great difference in the estimates with regard to the excavation between the two, that is, for the 200,000 H.P. on January 5th 1916, and that of November 27th 1917, approximately \$70,000 some odd. In the earth division there is considerably more excavation in the case of the 10,000 second foot excavation for the 200,000 H.P. development, a difference of approximately \$1,200,000, in the earth section. It provides for a larger section in the case of the rock, which is constructed, or estimated to be constructed, for the purpose of carrying 10,000 second feet, or a development of 300,000 H.P.; whereas the estimate of January 5th 1916 only had a canal section capable of generating, on the same basis, 200,000 H.P.

The bridges are of a more permanent construction. The gatehouse is estimated at \$273,000, instead of \$44,000.

Q--Just before passing, I notice in the estimate for Exhibit No.38, you put in the estimate on the basis of a canal for 300,000 H.P. installed?

A--That is qualified by the canal section being as 6500 second foot capacity, which would generate only 200,000 H.P. In order to take full advantage of 300,000 H.P., as far as that canal is concerned, it might have been necessary to put in storage works to take care of 50 per cent of the flow during light loads, as far as the canal is concerned. In other words, to get 100 per cent load factor flow with a 6500 second foot canal storing that water during low periods to get an ultimate 50 per cent of load factor, or 300,000 H.P. on the total plant.

In order to take care of the storage, as well as ordinary canal construction, that is probably the reason for the 300,000, to some extent. The canal itself was only capable of developing and transmitting 6500 second foot, whereas this section of the canal is for 10,000 second foot.

Q--What difference did that make in estimating the rock cost ? A--These are not exactly on the same basis but as near as we can get at it --

Q--Just approximately. A--Something between a million and a half and two million dollars would be the difference in the rock section. The forebay was of approximately the same size, very nearly the same cost of construction was provided for. There were only six units provided for in the forebay in the estimate of November 1917. The right of way was approximately the same, I should judge. The power house, the substructure and super-structure, although of more improved design, would be of approximately the same capacity. And the hydraulic equipment is about \$300,000 in the case of the estimate of January 5th 1916, and \$1,254,000 in the November 27th 1917 estimate.

Q--Would that be one of the items of increased cost of machinery which at that time you thought would be absorbed by the 25 per cent allowed for "contingencies ?"

A--No, it would probably take into consideration certain increases in cost of material up to that date, that is, \$1,254,000, up to the Spring of 1917.

The generators in the estimate of January 5th 1916, were \$1,177,000, and in the estimate of November 27th 1917 \$2,167,000.

Q--Was that for the same generators ?

A--Approximately the same, I should say, they may have been a little larger in size, 50,000 to 55,000 -- they are all approximately the same.

There is, in addition to that, general variations of design that had been taken advantage of, as far as the judgment of the engineers is concerned, between the two periods.

The interest during construction was put on a 7 1/2 per cent basis, and a 5 per cent basis. Contingencies represented 25 per cent, on both estimates.

THE CHAIRMAN: The 25 per cent is a margin that is allowed on contracts of this character, apparently. Was yours larger or smaller than is usually the case?

--On contracts of the character of canal construction 25, 30, 35 per cent is usually allowed for contingencies, in addition to interest during construction and things of that kind, but on account of unknown conditions in excavation of this character, we have to consider an amount in addition to the 25 per cent.

For the transformers, and the installation of equipment, we do not use such a large per cent, usually 15 per cent, that is for ordinary building, and things we have certain knowledge of -- sometimes only 10 per cent.

HON. MR. ROWELL: Well then at about this time the Commission received a request from the Prime Minister, Sir William Hearst for certain information in connection with the Chippawa, and other developments. I have before me the reply of the Secretary of the Commission, to Sir William Hearst's request, dated February 5th 1918, and I will read paragraph 10 :--

"10. Power to be obtained by Chippawa-Queenston Development, capital outlay, and when power will be available. Present plans and specifications for power canal provide for 300,000 H.P., and station, and power house installations of capacity of 100,000 to 300,000 H.P., at an expenditure of from \$17,000,000 to \$24,000,000,

"expected to be available by the end of 1920."

That would obviously refer to these estimates of November 27, 1917? A--Yes.

Q--Then, that was -- A--These estimates at that time varied from 150,000 H.P. at \$19,000,000 to \$24,316,000 for 300,000 H.P.

Q--The way it was put in this letter, I presume Mr. Pope would get this information from you :-- "Installations of capacity of 100,000 to 300,000 H.P. at expenditure of from \$17,000,000 to \$44,000,000." While there is no subsequent estimate of 100,000 H.P. in that group of estimates, your estimates work 150,000 H.P. is \$18,985,000?

A--Yes.

Q--You therefore concluded that for 100,000 H.P. it would be approximately \$17,000,000? A--Yes.

Q--Your estimate, in round figures, would be \$17,000,000 for 100,000 H.P. That is 10,000 cubic feet diversion; and 200,000 installation, \$21,000,000; and 300,000 installation \$24,000,000. That was a broad, general estimate?

A--Yes.

Q--That is the basis on which you gave those figures to Sir William Hearst the Prime Minister?

A--I should judge the information came from me.

Q--Now, prior to this time, you had called for certain tenders, or secured certain estimates, from contractors, on the work? A--Yes.

Q--What was the date, approximately, on which you asked these contractors to estimate, or tender, on the work?

A--Some time in November or December 1916.

Q--Exhibit G-37. Enquiry letters were written during December 1916? A--Yes, during December 1916.

Q--Your letter states :--

"We are mailing you under separate cover plans and

"specifications covering earth and rock work in upper canal, which will form part of the above development.

We would like you to submit a tender price for the excavation of earth and rock in connection with this work, the said figures to be in our hands not later than January 5th 1917.

We will be glad to give you further information as to estimated quantities, or any other information available which may be of use to you."

That was letter signed by you as Chief Engineer of the Commission? A--Yes.

Q--Will you tell me what plans and specifications you submitted to these contractors at that time, Mr. Gaby?

--It would be the general plan showing the location of the work, including intake excavation of the Welland River, in the canal, the earth section between Montrose and the rock section. The rock section of the headworks located at Queenston. It would show the general location of the work. That would be profiles showing the location of the rock borings, and the sections of the canal both earth and rock that were desired to be excavated at that time. And the specifications covered the general conditions of the contract, as to how the work should be carried on, and the manner in which they should tender. They would be general specifications giving a classification of the earth and rock, or concrete, whatever was covered by the specification, and a detailed description of the work. The specifications would give in detail all particulars of different parts of the work.

COMMISSIONER HENRY: Time of completion?

--Estimated time of completion. It would be an estimate as far as the tenders are concerned.

HON. MR. ROWELL: Would you kindly let us have a copy of the plans and specifications, because those plans are not the plans you have already filed, they would be more in detail. I will leave any further questions with regard to that until you get the plans and specifications.

Then, you went on with the work during the year 1918, as fast as the work could properly be proceeded with, I assume, having decided on your final plans at the beginning of 1918 ? A--Yes, the work had been proceeding, that is the preparatory work, since some time in 1917, in May I believe it was, and actual operations of the larger shovels I understand commenced in March or April of 1918.

Q--Yes, during the year 1917 you had been continuing your operations as fast as you reasonably could ?

A--Well, with what plant and equipment we had in connection with the preparatory work, such as preparing the subgrading for the railway, and things of that kind, with the shovels and equipment available.

Q--You were operating steam shovels ? A--Yes, steam shovels.

Q--Did you only need those electric shovels when you decided on the larger development ?

A--No, in making our investigations for the construction of these canals, the plant that we had recommended to the Commission was both suitable for the small or larger development, as the Commission might decide at any time.

Q--Well then, the change in the design of the canal, that is the enlargement, did not greatly change the character of the plant ? A--No, the largest proportion of the plant, ^{it} did not change.

Q--You had ordered the plant prior to this date ?

A--Yes, in January 1917, the large part of it.

Q--And part of it had been put on the work in 1917, you

were able to start with the large electric shovels in 1918 ?

A--In 1918, yes.

Q--Then, during the year 1918, did you have any reason to modify your view at all as to the total estimated cost of completing this work ? A--In 1918, during May or June, there was a very excessive increase in the cost of labour, which would of course modify any estimates that were prepared at that time.

Q--Did you make a report to the Board during 1918 that the estimates already submitted to them would not be adequate, that the amount would have to be increased by reason of the change in labour conditions ?

A--I believe I did report to the Board when these labour questions were under consideration, and advised them it would mean an increase in the cost of the work we were undertaking.

Q--How much ? A--That, I cannot tell you without reference to the files of the Commission.

Q--If you can turn up any reports you made to the Board showing an increased cost due to any change in conditions in the year 1918, I should be glad to have it, Mr. Gaby.

I notice in Mr. Clarkson's report for the year 1918, it shows the cost up to date, and balance necessary to complete, and adding the two together it gives approximately \$25,000,000?

A-- Yes.

Q--That would be substantially the sum ?

A--Is that his report for 1918, or his report for 1917 made in 1918 ?

Q--Well, I have not it here, we will have to wait and see because I am not sure. That is my information as to it. That is it; in the report for the year ending 31st October 1918, the expenditure up to date is put at \$7,550,000, and then this note appears :-

"It is estimated by the Commission that the sum of

"approximately \$17,500,000 will be required to complete the work, of which \$436,200 is the percentage represented by liability under contracts outstanding." That would give a total of \$25,000,000 ?

A--Yes.

Q--So that up to October 31st, 1918 apparently your estimate was still approximately \$25,000,000 for the completed work ? A--No new estimate had been made in the meantime, but conditions had materially changed, and as only a fraction of the work had been done, as far as the Commission is concerned, and not knowing what the future would bring forth as far as rates of pay and labour conditions are concerned, it may not have warranted a change in the estimate at that time, but if conditions changed it would have meant an increase in the cost over the estimate of 1917.

THE CHAIRMAN: An increase more than sufficient to be taken care of in the 25 per cent you have added for contingencies ? A--I should say, as I remember, that the wage increase from 1917 to 1918 was 20 to 25 per cent, I cannot say definitely offhand.

HON. MR. ROWELL: Sir William Hearst is here now, and I would ask Mr. Gaby to stand aside until Sir William Hearst gives his evidence.

SIR WILLIAM HEARST, K.C., sworn. Examined by HON. MR. ROWELL:

Q--Sir William, you were Prime Minister of the Province of Ontario from what date in 1914 ?

A--Some time in October, as I remember it.

Q--Until ? A--The 13th of November 1919, I think.

Q--And during that period the Chippawa Development was initiated and carried forward to a certain extent ?

A--Yes.

Q---I just wanted to ask you a few questions in reference to that. I find, Sir William, that a report was made to you and the Cabinet Council by the Chairman of the Commission, under date of September 13, 1915, Exhibit No. 2 on this Inquiry, recommending the commencement of this Chippewa Development, and setting out the cost, and general conditions with regard to it ? A---My recollection is that we had a very complete and comprehensive report about that time.

Q---Then I see a letter in the file following that in which you asked, apparently after an interview with the Commission, for certain further information, which is given in a letter of the Chairman dated October 5th 1915, I think ?

A---October 25th, I guess. Yes, my recollection is that the Chairman and Mr. Mc Naught, who was then the member of the Commission, came up and laid the proposition verbally before the Cabinet. And my letter of the 6th of October was evidently written on the day after the conference to which I have referred.

Q---Well then upon having received this report with the recommendations contained in it, that is Exhibit No. 2, in the ensuing session of Parliament you introduced legislation authorizing the Government to authorize the construction of this work ? A---That is correct.

Q---Referring to the Ontario Niagara Development Act of 1916, I notice in the preamble, towards the foot of the page, that the Commission had prepared a scheme for the development of power, and estimates as to the cost thereof, and submitted them to the Government. And then it goes on to recite as to the authority to carry on the development.

What report did you have before you at that time, which is recited in the Act, can you say ?

A---Well, I would have this report Exhibit No. 2 that you have marked, that is the only formal report so far as I am

aware, except the additional information contained in the correspondence to which you have already referred.

Q--Would the estimate in the Act be the estimate referred to in that report? That report contains an estimate, on page 10. I find these words, on page 10 of the report :--

" It was found that on the basis of an estimate 300,000 H.P. capacity for the permanent works, and with 100,000 H.P. equipment installed, the development could be made for \$10,500,000, with an annual charge of approximately \$944,500 per annum including operation, interest, sinking fund, maintenance, and all other operating charges, or an equivalent of \$9.44 per H.P. per annum for 100,000 H.P. Without depreciation and sinking fund the annual charges for 100,000 H.P. would be \$7, and for 75,000 H.P., \$9.20.

Estimates were also prepared to cover capacities up to 200,000 and 300,000 H.P., which indicate that 200,000 H.P. can be developed at a price not exceeding \$7 and 300,000 H.P. at a price not exceeding \$6 per annum, including interest, sinking fund and depreciation charges."

Would that be the estimate, Sir William, which the Government had before it, and which is referred to in the preamble of that Act, or did you have any other estimate before you? A--So far as my knowledge serves me, there was no other. I may say that I was not very well at that time and had to go away for my health just before the completion of the session and before this actually went through, but it had been decided upon, and I had made a statement in the House, and it was arranged that the Act would go through, before I left, which was a week or ten days prior to the close of the session. I have no doubt

these estimates were the estimates.

Q--These were the estimates at least that you had before you when you decided to make the statement in the House?

A--These were the estimates I had then.

Q--Then, after the Act was passed, I find various requests for an Order-in-Council for authority to proceed, and I notice two Orders-in-Council, one in June, and one in July, 1916, which covered authority to proceed under Subsections A and B of Section 3? A--Yes.

Q--Then, on November 25th, 1916, there is a formal request for an Order-in-Council for authority to proceed under sections C and D, that is, to go on and construct the Canal. It is Exhibit No. 6, I think you will find it in the file, Sir William. A--I see a copy of a recommendation to the Council as of that date in this file.

Q--Do you see a request there from the Hydro Electric Commission? A--Yes, I see a copy of a communication from the Chairman under date of November 25th, asking that they be authorized under the Section which you have referred to, to construct and erect works, and to acquire the necessary machinery, plant, etc.

Q--I find following that, Sir William, a letter from you to Mr. Lucas of December 12th, calling for further information in reference to the matter? A--I remember having written such a letter as a copy which I see on the file.

Q--In which you asked for certain definite information? A--Yes.

Q--I notice one thing particularly, as to the total estimated cost, as to whether independent expert opinion has been secured as to the feasibility, and cost of the

proposal, and the letter closes by asking for any further data the Commission may have which will enable the Government to determine whether they should go on with the work, and it refers to the responsibility assumed. You recall calling for that information, Sir William? A--I do.

Q--You received a letter from the Commission in reply, dated January 12th, 1917? A--Yes, the original letter is on this file.

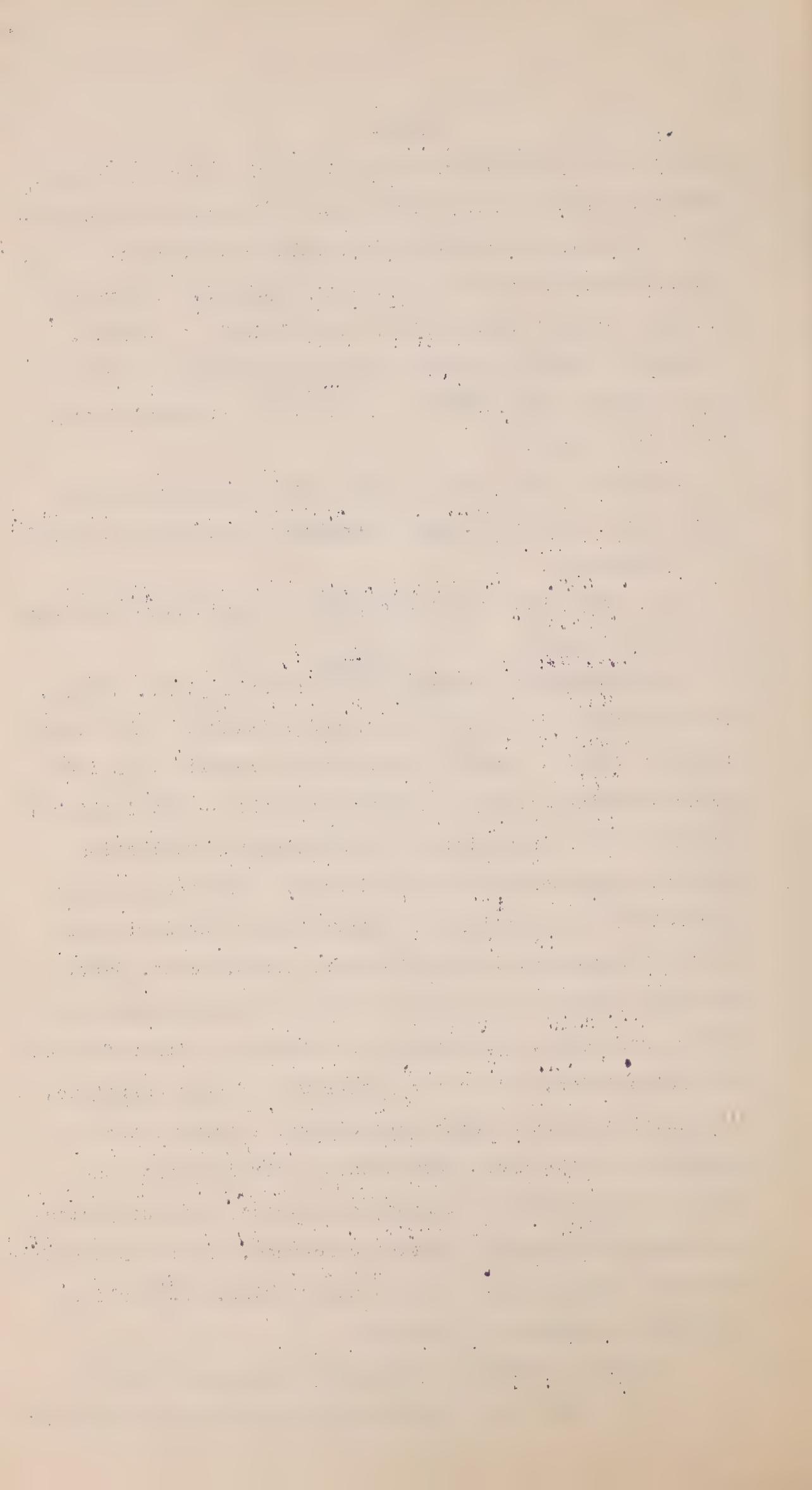
Q--And they gave you the total estimated cost, and the period for completion, and enclosed a plan of the work? A--Apparently.

Q--Mr. Gaby, have you those plans you said were furnished with that letter?

MR--GABY: SIR WILLIAM ^{HEARST:} I may say, Mr. Lowell, in connection with this letter, and I think it only right I should say it, that in asking for a report of an independent Engineer I did not intend to make -- and I think I guarded myself in my letter from making any reflection upon the Engineers of the Commission, I had the greatest respect for the ability and integrity for the Engineers of the Commission, I think both Mr. Acres, and Mr. Gaby, the Chief Engineer, are men who are in the forefront of their profession, and nothing has shaken me with reference to that opinion, but as the matter was of such magnitude, and involved such a large expenditure, I thought the Engineers of the Hydro should have their judgment confirmed or otherwise by independent advice, for the protection and safety of all parties concerned, and by an Engineer who had nothing to do with the undertaking, and would be absolutely unbiased in his view

HON.MR. ROWELL: Mr. Gaby, are the plans there?

MR. GABY: No, they have not come from the laboratory yet.



HON. MR. ROWELL: The plans are Exhibits 9, 10, and 11. The Canal is described in the letter, for a diversion of 6,550 cubic foot per second, and you have the estimated cost? A---Yes.

Q---Given in the letter in reply. A---Yes.

Q---Then, upon receiving that information, I do not find that you issued an Order-in-Council, but I do find that an Act was introduced at that session giving the Commission authority to proceed under Section 3 of the Act. If you will just look at the Statute, Sir William. And the 1917 Act gave authority to proceed under Section 3 of the Act of 1916. A---I speak with some hesitation, as I am depending entirely on my memory; I think there was some question about having the assent of the municipalities interested, to this undertaking, and I think that was perhaps a part of the statement to which I referred as the policy that I made in the previous Session. This Act implements the understanding of the previous session, that authority would be given to go ahead with the work.

Q---Then, the Act of 1917, those two things, broadly imposes the ultimate obligation for the cost upon the municipalities, and it authorizes the Commission to proceed, and exercises the authority given by the Act of 1916.

A---Yes.

Q---Without any further Order-in-Council? A---Yes, that is so.

Q---Then, that Legislation, and the authority thus given, so far as you were concerned, would be upon the information contained in the reports you had already had before you, that is, the report in answer to your letter of December 12th? A---So far as my memory serves me now, yes. Of course, Mr. Lucas, a colleague of mine in the Government, was also a member of the Commission, and

frequently we would discuss Commission matters, and I might get information in that way, but, so far as any official information is concerned, I think it would be here if I had had any.

Q--Can you tell us, does your recollection serve you, whether you got any information that in any way varied that contained in the official communication to you of January 1917 ? A--My memory does not serve me as indicating that I had any.

Q--Your present recollection is that that communication contains the information that you had ?

A--Up to that time, I think that is true.

Q--Then, were you ever consulted about any change in plans from the plans then submitted to you as to a much larger undertaking ? A--I cannot remember anything definite, Mr. Rowell, in that direction; if there was a formal application it ought to be on the files.

Q--There is no formal application, the Commission has told us that ? A--I wish to say that Hydro matters were a constant matter of discussion between Mr. Lucas and myself, and whether I might have been informed in that way, I would not like to say, but I do not remember anything being brought up that caused specific action, at all events.

Q--Does your memory serve you as to any application having been made to the Government asking their approval of the larger scheme, verbally or otherwise ?

A--Understand, Mr. Rowell, it is very hard at this stage, having heard so much for some years about this matter, and so little for the last few years, for me to say, and I would not like to say with any definiteness as to what might have been suggested verbally; I would have to depend on the records.

Q--One can quite appreciate that, and if you do not feel

you can go further, I do not want to press it; I thought you might give your present best recollection on that point, that is all.

A--You tell me there is no record of anything?

Q--No, there is no record of any application to the Government for any change in plan, or approval of any change? A--Well, I would not like to go further. Evidently if there is no record, no action was taken at all events.

Q--Then, I think the explanation may be, Mr. Pope said his view was that the Commission had authority to go ahead without consulting, under the Act of 1917, and that it was not necessary to ask the Government's approval?

A--I can quite understand, once we committed ourselves to the project, and the plant had been purchased, and work undertaken, we would feel it was a question of going through with it then, and perhaps a change in the plans would not have impressed us so much because we were entirely dependent upon the advice of the Commission, and engineers; we had no independent engineering advice of our own.

Q--Of course, this change in plan involved an increase in expenditure over the 200,000 H.P. immediate development, from \$13,000,000 to \$21,000,000.

A--In cost?

Q--In cost. A--I think perhaps I might just say here that the information that came to us, and the general knowledge we had in those war days, would lead us to the conclusion that the largest development possible was the one that ought to have been made with reference to power. We were being harassed almost daily because of the shortage of power, and the question was whether this work could be speeded up so that power might be available for service during the war.

Q--I find that in the Spring of 1918, you requested information from the Commission, including other matters, as to the power to be obtained on the Chippawa Development, capital outlay, and when power would be available.

On the 5th of February 1918, the Secretary of the Commission wrote you, covering other matters, but including this item :-

" 10. Power to be obtained by Chippawa-Queenston Development, capital outlay, and when power will be available. Present plans and specifications for power canal provide for 300,000 Horse power and station and power-house installations of capacity of 100,000 to 300,000 horse power at an expenditure of from \$17,000,000 to \$24,000,000, expected to be available by the end of 1920."

Do you recall the occasion of your asking for that information in connection with your budget ?

A--I have not just the occasion in my mind, but it was my practice when the session was coming up to get an estimate in order to be prepared for attacks by you, and we tried to get the facts we knew you would be pressing for, in order to give more power to the Hydro Electric, and enact legislation. We wanted to see how well we could accommodate you, no doubt that was the reason we wanted the information, for the coming session, probably for the budget. I have no doubt we wanted to have a specific report in writing from the Commission, or from some authorized officer of it, as to what the situation was.

THE CHAIRMAN: Mr. Rowell what is the date of that letter ?

HON. MR. ROWELL: The letter is dated the 5th of February 1918.

THE CHAIRMAN: I think you are not in the legislature at that time.

WITNESS: I remember his past transgressions.

HON. MR. ROWELL: I suppose, speaking seriously, you wanted information for the guidance of the Government in the approaching session? A--No doubt.

Q--Then, I find that the matter comes up again in the form of a request from Mr. Mc Garry, dated February 20th 1919, to the Secretary of the Commission as follows :--

" Would you please furnish me not later than Saturday of this week with a detailed estimate of probable expenditures for the current fiscal year. I am endeavouring to prepare material for my budget, which will be delivered early in the session, and it is quite impossible for me to complete it until I have a statement from your Commission.

I would also like a statement showing how much money has been expended on the Chippawa Development, up to the present time, and the estimated cost of its completion. I would also like a statement showing what horse power will be developed at that cost.

You will quite appreciate the fact that I will probably be asked a number of questions when delivering the budget, and I wish to be in a position to reply to them."

A communication came in reply which apparently did not give Mr. Mc Garry the information asked for, and on the 24th of February 1919, Mr. Mc Garry wrote this letter to the Secretary :--

" On the 20th inst. I wrote you a letter in which I asked for :

1. The estimated expenditures for the current fiscal year.
2. A statement showing how much money has been expended on the Chippawa Development up to the present.

"3. The estimated cost of completion of this work,
4. A statement showing what horse power will be
developed at that cost.

" In the information given me today, I see
nothing except the estimated amount to be expended
this year.

I would like you to give me the completed
information with as little delay as possible."
Then this answer from Mr. Pope on February 25, 1919.
" Yours of the 24th inst. to hand. I regret that
the information furnished you by Mr. Gilmore, our
Treasurer, did not contain all that you require.

I am now instructed to advise you, in reply
to your letter of the above date, that the amount of
money expended on the Chippawa Development up to
31st January 1919, was \$8,487,215.52 of which
approximately \$3,000,000 was for construction plant,
and machinery.

The cost of the completion of the work was
estimated at \$24,000,000 to \$25,000,000. The horse
power to be developed at that cost is estimated at
\$300,000.

Trusting this will give you the information
you require. If, however, there is anything further
I shall be pleased to furnish it."

That was giving information up to February 25th 1919 ?

A---Yes sir.

Q---I presume that came to your attention ?

A---I cannot remember specifically, I have no doubt it did.
We would discuss these matters in Council in connection
with the estimates for the year, and it would be a matter
of interest that Mr. Mc Garry would likely bring to my
attention, as it was a very large, and important item.

Q---Can you tell me this, Sir William, whether you

received any information subsequent to that, during the period of your premiership, that would lead you to think that that estimate would be increased, departed from or changed? Have you any recollection of any further information being furnished? There is no official communication, as far as I find in the record during that year. A--I have no recollection of any other information, Mr. Rowell.

Q--So far as you were concerned, as far as you knew at the time your Government resigned, that was the estimated expenditure for the Chippawa Development?

A--I think that is true. I just want to repeat what I said before, that I may have had verbal information from Mr. Lucas; I know we were somewhat concerned about the costs mounting up.

Q--Yes, you were concerned at the amount of the estimates which had then reached \$24,000,000 to \$25,000,000?

A--Yes.

Q--I should think you would remember if you had received any further subject matter, any further information as to any substantial increase? A--Well, of course, I knew perhaps prior to that date, as no doubt everyone knew, that construction costs had increased away beyond what anyone could possibly have expected, and I think perhaps our anxiety was caused more by that knowledge that labour and materials had greatly increased in cost, than any specific estimates we had; in other words, we knew that conditions were such that the work was going to cost more than we anticipated when we entered into it; not that I am apologizing for entering into it at all.

HON. MR. ROWELL: Unless there is something further the Commissioners wish to ask, that is all, Sir William.

THE CHAIRMAN: I do not think there is anything further.

HON. MR. ROWELL: Thank you very much, Sir William.

F. A. GABY, resumed. Examined by HON. MR. ROWELL :

MR. GABY: Just to answer the Chairman's question : the increased cost, Mr. Gregory was 23 per cent in the average rates of pay from 1917 to 1918.

THE CHAIRMAN: That would be what time in 1918 ?

A--That would be any time after May of 1918. The rates in 1917, up to May, would be 1.52 as based on 1914, and 1.75 in 1918.

Q--Will you file that statement ? A--Yes, I will give you a copy of it.

Q--How do you describe that document ?

A--"Comparison of monthly and daily earnings of various classes of labour from 1914 to 1921." That would largely eliminate any 'contingency' we had.

EXHIBIT NO. 41: Filed by : Comparison of monthly and
: Mr. Gaby : daily earnings of various
: March 23 : classes of labour from
: 1923. : 1914 to 1921.

HON. MR. ROWELL: What is this statement based on ?

A--It is based on actual rates and relative amounts prevailing on the work.

Q--On your work ? A--On the work, yes.

Q--Then, referring to this communication from Mr. Mc Carry which I just read to Sir William Hearst, in February 1919, desiring to know the total cost, Mr. Pope, in his letter, states :-

"The cost of the completion of the work was estimated at \$24,000,000 to \$25,000,000. The horse-power to be developed at that cost is estimated at 300,000."

Now, that is still the estimate of the previous year ?

A--No change had been made in those estimates, or no new estimates had been officially made from 1917.

Q--I suppose Mr. Pope wrote that letter, on your information ? A--I don't know what he did, I doubt whether he did, I think he probably had taken the estimates as were in existence at the time.

Q--Do you not think, perhaps your memory may serve you, in view of the particularity of Mr. Mc Garry's request made the second time for specific information on the estimated cost of the completion of the work, that Mr. Pope would be likely to discuss this matter with you ?

A--Probably.

Q--Was this as fair a statement as you could make to the Government at that time, of the estimated cost of the completion of the work ? A--Having due regard to the conditions that were in existence at that time, I would say yes. In view of the labour conditions, and it was just succeeding the Armistice, it was our anticipation that there would be a very great reduction in labour, and less stringency than obtained in the war days. In other words, we anticipated that material would be much more free, and there would be a reduction in the cost, and we estimated there would be a falling market. On the contrary, the costs exceeded our anticipation, and we would have been warranted in changing the estimate.

Q--Do you agree with the view expressed by Mr. Beres yesterday, that looking at the situation at that time you saw no reason to change the estimate ?

A--Our expectations, looking into the future, as to labour conditions, and a falling market, led us to believe we would probably come out all right on those conditions; not more than 10 to 15 per cent of the work had been completed by that date, that is the actual construction work.

Q--But a limited amount ? A--But the limited amount.

Q--Proceeding that, there had been great pressure for additional power for the munition industries, that is, up to the Armistice ? A--Yes.

Q--During 1917 and 1918, the demand for additional power had been very urgent ? A--Yes.

Q--That demand from the munition plants ceased when the Armistice was signed on November 11th ? A--Yes.

Q--And from that time on, the pressure, so far as the munition industries were concerned, was over ?

A--As far as the direct munition industries are concerned, immediately succeeding the war, for a short time their industrial activities were intensified, and as a matter of fact, our power conditions became even worse than they were during the war.

Q--Was that due to industrial conditions, or apparently due to increased domestic utilization of power ?

A--Not altogether domestic, it was greatly due to intensified industrial activities up to the year 1920; there was a small lull in 1919, that recovered very quickly.

Q--Was there anything in the conditions as you saw them in the Spring of 1919, the war being over and the necessity for powers for munitions having passed, and the urgency of the demand for the increased industrial activity not having then arisen, that led you to consider whether it would be wise to slow down the work, or did you consider you were safe in going ahead ?

A--As a matter of fact, the matter was seriously discussed at a number of the meetings of the Commission as to the extent we would carry on operations, or slow up, or go on more rapidly, as the case may be. But, in my own mind, it was always evident that we would have to continue and complete that development at the earliest possible date in view of market conditions.

Q--Did you make any report on the matter to the Commission ? A--With particular reference to pushing the work on the Chippawa-Queenston Development ?

Q--Or discontinuing or slowing up ?

A--Not that I recollect just at this moment; I may have.

Q--Will you just look up and see if you made any report on that to the Commission ? A--You mean, by that, an official report, written report ?

Q--Written reports, yes. Is there anything on record, or any Minute of the Commission which indicates that point was raised by you at the Commission meetings ?

Then, when did you first realize that your estimate of \$24,000,000 to \$25,000,000 would be quite inadequate ?

A--I should say, when we realized that the conditions were not going to materialize that we expected in the early part of 1919; instead of having a falling market, as far as labour is concerned, we had another increase in 1919, and there continued to be a stringency in the labour markets.

Q--Can you fix that period ? A--Not any real definite period, no.

Q--Did any such condition arise involving such a large increase in expenditure as led you to make any report of it to the Board ? A--In March of 1919, and just subsequent to this letter, I made a report to the Commission recommending an increase in the capacity of the canal, and also a report recommending that the canal be lined, due to the fact not only would it increase the capacity but would reduce the time of construction.

Q--So, so far from slowing up, your recommendation was to enlarge ? A--Yes.

Q--Now, that recommendation of March 1919 was to enable you to utilize 15,000 second feet ?

A--That was primarily to get the canal completed at the earliest possible date, and also construct it of the

largest size possible.

Q--Have you the Minute of the Board authorizing that?

A--I think there is a Minute of March the 25th. The Minute of March the 25th reads as follows :--

" The Chief Engineer submitted a report covering the proposition of lining the rock section of the canal at Niagara with concrete, at an estimated expenditure of \$786,100, and after careful consideration and in view of the fact of this being essentially a power conservation measure, and the power being conserved would be available at a small extra annual cost, it was decided that approval be given to the work."

Q--In the so-called estimate 2-A, is the amount of your estimate the total of estimate 2, with the additional amount added? A--No, I wish to have that corrected, because our report to the Commission dated February the 14th, deals with that, and there is a memorandum dated January 3rd 1919, which takes care of the deductions and additions to the canal, stating :--

" This proposition has been considered on the basis of three obviously correct assumptions with regard to the concrete lining.

1st. The value of the roughness coefficient can be estimated with a very much greater degree of accuracy in the case of a concrete lining than it can in the case of the channelled sides.

2nd - It will take much less time to drill the sides of the rock out than to channel them. This is a very important item in connection with keeping busy the extra shovels which we have now on order. Furthermore the lining of the cut will not extend the period necessary for the completion of the work as the placing of concrete can be arranged to follow closely behind the completed excavation.

"3rd. It is certain that a material lower roughness coefficient will apply in the case of the concrete lining than would in the case of the channelled sides, so that there will be a corresponding material increase in power capacity of the Canal for equivalent cross-section."

And the statement goes on to discuss details, and makes a recommendation to the Commission.

Attached to that report is an estimate of the additional cost for the lining of the rock section of the canal with concrete, amounting to \$786,100. And that is the only report that was submitted to the Commission. The cost would be less if it was decided to eliminate the channelling of the sides.

Q--I understood you to say the other day, Mr. Gaby, that in your utilization of 15,000 second feet in the canal it included the lining of the canal ?

A--Also the deepening of the canal, there was an additional 281,000 yards of rock excavation taken out, which included not only the canal itself to the extent of approximately 31, but also included the rock that was to be taken out at the forebay where the headworks were increased from 6 to 9 units.

Q--This estimate covers the additional expenditure involved in the changes then contemplated ?

A-- Yes, the unit cost being used in that, similar to the original estimate.

Q--Do you agree with Mr. Acres, that viewing the situation as you then did -- I assume, from what you have already said, you do -- in April 1919 your view then was that with the additional expenditure added to . . . your estimate No. 2, you should be able to construct the work ?

A--That is with the anticipation of lower wages, and

lower cost of material, and relief as far as the labour stringency was concerned -- which conditions of course never materialized as far as the work is concerned -- our expectancy as to the future was wrong in connection with that.

Q--Was there any other important modification in the plans which affected expenditure, except the change in the intake?

A--There was no particularly large item, excepting the lining of the canal, as far as the canal is concerned, and the recommendation of 1920 as to the new form of intake.

Q--Well then, in order to get comparable figures, it would be necessary to add the additional cost of the new intake to these figures as of January or March 1919 to get the cost of the work as finally done, up to the 300,000 horse-power development? A--That is taking into consideration the fact that we expected --

Q--We are taking that into consideration all the time?

A--With our best judgment, we had made no change in our estimates from the year 1917, as regards estimates of cost for the 300,000 H.P. development. We counted on using approximately the same unit numbers, but increased the excavation as far as the canal is concerned, and increased the excavation as far as the forebay is concerned, and the lining of the canal with concrete instead of the channelling, and the very much ^{on}larged intake; but I do want it understood that with conditions as we knew them and in taking into consideration the fact we had expected conditions of 1917 to return in 1919, or 1920, or 1921 as the case may be, with 75 per cent of the work to be done, that we ^{would not} reasonably be expected to have changed the estimates which were based on conditions as of that date; we had no warranty in changing our estimates, in view of our expectations of the future; but the estimates as prepared in 1917 would not be the estimates of 1919, if we

had to complete the work under the conditions then obtain - ing.

Q--Of course, in the letter from the Secretary of the Commission to Mr. Mc Garry of February 1919, the Secretary does not suggest that there are any factors in the situation which may change the estimate, they send that forward as the estimate, without any suggestion as to a possible increase? A--That was, of course, the Secretary's best information at that time, he had no other estimate to guide him. It requires two or three months to prepare an estimate of the character necessary, in detail, similar to the one referred to, in other words, to revise these estimates would require considerable work.

Q--The work as then planned, with these additions you have mentioned, adding the increased cost of the changes due to the mistake brought the estimate to \$27,025,635, for work substantially as it has been completed. I am now speaking of the plan and design? A--In general, yes, I do not mean these general features in detail, but there would probably be material changes.

Q-- It is that same work which was estimated, on September 30th 1920, by Stuart & Kerbaugh, at \$43,271,000, that is, five units complete? A--You have to take into consideration what he did ~~in~~ arriving at that \$43,271,000.

Q--Just a minute. We will go into the full details about it, but all I want to get is, does it relate to the same work? A--Not in the same way.

Q--But, Mr. Gaby, please. A--Wait a minute, Mr. Rowell.

Q--No, we will not get at cross purposes.

A--I think the explanation will cover it. You will see, in the estimate, ^{he} takes into consideration, in arriving at the figure of \$43,271,000, the fact that he is going to sell rock -- so there is no similar consideration in the

estimate of 1917.

Q--I was not aware of that. A--That was the point I was trying to bring to your attention. I think you will that is the case.

Q--Why did he bring that in ? A--I should say, in his judgment, he would be able to create a saving by the sale of this rock, and lower his actual cost, in other words, in the amount of \$43,271,000 he was trying to get down to the lowest possible estimate, which he figured at that time as being the cost for which the work could be done, or what was the object of introducing this element into the situation ? As I remember, he gave details of his cost, and it was his judgment he could sell rock to the extent of so many million ton, at \$1 a ton, which would reduce the cost to a certain amount.

Q--Do you agree with that, Mr. Gaby ? A--Not that I know of.

Q--I find the estimate in Exhibit No. 36 V-15 A part 27

A--Yes, he had salvage of \$4,000,000 and \$2,600,000 for stone, or a total in the salvage and stone of \$6,600,000.

Q--Do you agree with that estimate ? A--No, because I did not see it at any time.

Q--Did you form any estimate yourself of the cost of completing the work in the year 1920 ?

A--No, at that time I was very busily engaged on other works, and the details were left to the Consulting Engineers in connection with the preparation of these estimates. In 1920 I took these estimates, went over them, and added certain amounts to them, and requested appropriations from the Government to the amount approximately \$55,000,000.

Q--In 1920 ? A--In January 1921.

Q--Let us confine ourselves first to 1920, if you will,

Mr. Gaby, please ? A--These estimates were submitted, I believe in October 1920, although dated September.

Q--Well, Mr. Acres told us yesterday that he agreed with this estimate of Stuart & Kerbaugh so far as it related to his part of the work ? A--I cannot speak for Mr. Acres, but I think he referred to the cost, I do not know that he was thinking of the rebates in connection with stone and salvage recoverable.

Q--Take the rest of it, leave out rebates and salvage recoverable, his testimony would certainly cover the rest of it, so far as his branch of the work was concerned ?

A--Yes.

Q--Do you differ from this estimate, so far as the electrical branch of the work is concerned ?

A--No, I don't think we did.

Q--Well then, putting the two together, your estimate on the electrical branch, and Mr. Acres' estimate on his part of the work, you two would agree with this estimate, except as to the salvagable material and the broken stone ?

A--The estimate for the electrical work is made in the same way as Mr. Acres makes his estimate with regard to the hydraulic part of the work, it is prepared by the staff, and submitted to me for approval, in connection with these estimates. That is, the estimate Mr. Acres would submit is on the same basis as the Kerbaugh estimate, as far as he assented to the Kerbaugh estimate -- it would be submitted on the same basis as the estimates for electrical equipment. I would not say that they made an estimate in detail, but the estimates are submitted to me for approval by the staff.

Q--Would this estimate represent what you had approved ?

A--Not in toto because certain corrections were made to these estimates in connection with interest, and other matters, and the appropriation asked from the Government

would be approximately \$55,000,000.

Q--In the following year ? A--In a few months, shortly after the receipt of these estimates. And, as a matter of record, we used the Kerbaugh estimate as far as it applied to the conditions, and submitted it to the Government as being based on our information of what the cost of the construction of the canal would be at that time.

Q--At that time, you also got estimates from the Cooper Company ? A--Earlier than that, in August.

Q--They were substantially larger, as I recall it ?

A--Due to various assumptions he had made that were somewhat different from the Francis, Lee, and Stuart Company, as far as details of construction are concerned.

Q--In what respect did they differ, as far as subject matter upon which they were estimating is concerned, without going into the details of it ? A--They placed in certain contingency items for anticipated difficulties that did not occur. That was one thing they placed in, as I remember it, with regard to the ice chutes, and other sections we had not in, for instance, ice chute \$499,000, testing whirlpool section \$45,000.

Q--So it is your view that the Cooper estimate might have been rejected as not being applicable to the conditions under which you were working ? A--Not in general. I am just stating that they had information in this estimate that we did not consider necessary, as far as we were concerned.

Q--All I want to get is your opinion in reference to it, because that estimate reached over 300 per cent on the development of 6500 ? A--Yes.

Q--Do you agree, or not, as that being a fair estimate of the cost at that time to complete the work ?

A--We thought it was very excessive and immediately arranged for an eminent engineer, Mr. Stuart, and a contractor

named Kerbaugh to go over this work and recheck the estimates.

Q--Because you thought Cooper was excessive you asked for this later report from Stuart & Kerbaugh?

A--Yes, we did not think the figures taken from our actual records warranted that estimate, and we asked for a further report from Mr. Stuart and Mr. Kerbaugh.

Q--In the Stuart & Kerbaugh report they went into this, as I understand it, with Mr. Acres and yourself, and the officers of the Commission? A--With Mr. Acres and staff at Niagara.

Q--Checking up your own figures, and with Cooper's estimate before them? A--I don't whether they had Cooper's estimate before them.

Q--You had Cooper's estimate? A--I had Cooper's estimate. They had all the records of the actual cost of the work, the amount of excavation, the classification of materials, and so forth, in fact, all the information that the Commission had, which was placed before the engineers for their consideration. They had information as to schedules, anticipated progress, and the actual cost of the work up to that time.

Q--I notice at the conclusion of their report, they sum the matter up in this way:

" In general we have to advise you; first, that while this is a large undertaking, it is in excellent shape for early completion; second, that all unknown conditions and uncertainties of construction have been eliminated; third, that the equipment is suitable; fourth, that we think the peak of inefficiency of labour, and the peak of prices of material and labour have been reached; fifth, that with no unusual labour conditions, and with materials properly supplied, we consider the estimates of cost,

"and dates of completion as feasible and dependable.

The project and its purpose appealed to us in all its phases. The conception and design is simple and effective, and the construction work is being carried out with proper present day equipment, and in an intelligent capable way, with credit to all concerned."

They were obviously satisfied as far as they were concerned at that time, that they had taken into consideration all factors necessary to reach a proper estimate. What I want to ask you is, do you agree in that view, did you agree at that time? A--As I stated, I was busily engaged on other work at the time and did not go into details along with those men, it was entirely in their hands. I agree in the view that as far as the work is concerned that it was in excellent shape to go on with, and that it was carried out in the most efficient way possible.

Q--I notice in this report also, and I would like to ask if you have any knowledge of the letter from Mr.Kerbaugh to the Chairman of the Commission, dated at Chicago on October 2nd 1920, which reads as follows :--

" Dear Sir,

In answer to your inquiry on the occasion of my recent visit to Niagara, I may say, as a contractor, I am willing to contract for the work covered in the report submitted to you by Mr.Stuart and myself, on the unit prices mentioned therein.

I would further undertake to place the first two 55,000 H.P. units in operation, but not on the specified dates mentioned in our report."

Mr.Kerbaugh states that he is willing to furnish a dredge, and undertake to complete the work within the time

named in the contract.

If you had accepted that proposal, Mr. Gaby, would that have covered the completion of the work at those figures within the time mentioned?

A---I doubt, as an engineer, that we would have carried out the work in those times mentioned, and under the conditions, at those unit figures, in view of the extras, and unforeseen conditions which the contractor might make a claim for. I think it is well taken care of by the report made by Messrs. Stuart and Kerhaugh, in answer to the request by the Commission for a report on the reasons of the increased cost.

Q---Just deal with this question, was that a bona fide offer? A---As far as I know; the man's signature is there.

Q---It was a bona fide offer? A---He adds qualifications with regard to the unit prices, and he places conditions in his report.

Q---And it was a bona fide offer to complete the work on the basis of their estimates?

A---I guess that states so on the face of it.

Q---Now, the fact is, whether they could have done it or not, that the actual cost of the completion, up to the five units installed, which they estimated, was \$43,000,000 odd?

A---It was \$49,000,000 something; there was something over \$6,000 000 for deductions, for salvage and stone.

Q---They say they offer to do it for that amount?

A---Not on the unit prices.

Q---They allow no deduction for salvage, or stone; it is \$40,000,000 how much? A---\$49,000,000.

Q---Is compared with how much, allowing no deduction for salvage? Your estimate of \$65,000,000 allows deduction for salvage? A---Our estimates take care of the administration, engineers, and so forth, while in these unit costs they do not take care of such overhead, as far as

they are concerned. If we accept that figure as the actual cost, we would have to add to their estimate an amount for interest during construction and other things that might occur as far as the Commission is concerned.

Q--Then that estimate of theirs was submitted to the Commission, and then submitted to the Government, because it was sent on to Mr. Drury the Prime Minister, was it not, as the complete estimate for the cost of the whole work?

A--That was complete as to the work, but there were certain items, such as interest during construction, as an overhead, that we had to take care of ourselves, and which was not taken into consideration in their estimate.

Q--Why was it not included in the estimate?

A--I don't know, I suppose they considered it in part of their estimate, they took the cost of doing the remaining part of the work during the two remaining years.

Q--At that time, I think it appears in some of the communications, there was a good deal of criticism of the work and its cost, and you were asking for reports from experts, which might be furnished to the Government in order to satisfy the Government as to the liabilities they had to face? A--Yes.

Q--Was there anything accompanying that report that you sent on to the Government pointing out that that estimate did not cover the total cost?

A--You mean the report to the Government, for the amount of \$55,000,000?

Q--No, I am dealing with 1920. A--In 1920, no, I cannot say whether it was drawn to their attention. On its face, I would say that certain interest charges are probably not included.

Q--You mean it does not appear to be, on the face of it, an interest charge? A--No.

Q--If there is an interest charge, it would be included in these items ? A--The interest charge during the actual period of construction was included, but the overhead interest charge on back payments, that is, money that has gone before, they did not take care of that, and that money was necessary in order to carry on that particular job.

Q--You submitted an estimate to the Government in 1920 of \$55,000,000 ? A--Approximately \$55,000,000. We asked for appropriations to cover the completion of the work, of approximately \$55,000,000, including amounts already expended up to the end of October 1920.

Q--Have you the estimate upon which you based that ? You can look those up and give them to us on Monday ?

A--I think it was in the book of estimates.

THE CHAIRMAN: Will Sir Adam Beck be here on Monday, Mr. Gaby ?

A--I doubt it. Sir Adam has been in bed the last three weeks. I think he was downstairs for the first time yesterday afternoon. There is a consultation of medical men today. It may be a week or more before he can attend.

Q--You may hear from him tomorrow ? A--Yes. He has been very ill, there is a consultation of medical men today, and I do not know what that will mean, as far as he is concerned.

Q--You will very likely hear on Monday how he is ?

A--On Monday, yes.

Q--You may be able to tell us then as to his condition ?

A--I will call his residence and see how he is getting along.

THE CHAIRMAN: We will adjourn until Monday, March 26th, 1923, at 2 o'clock.

(The sittings adjourned at 4.30 p.m. Friday, March 23rd, 1923, until Monday March 26th at 2.00 p.m.)

